

PRIVATE AND CONFIDENTIAL.

THE

NEWFOUNDLAND

TRANS-ATLANTIC ROUTE,

Via GREEN BAY, BAY OF ISLANDS,

AND GASPE.

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INTRODUCTION.

IN the following pages an attempt has been made to deal in some detail with the proposal to establish a new Trans-Atlantic Route by way of Newfoundland. It may be useful to outline briefly its main features.

The primary fact on which the proposal rests is the geographical position of Newfoundland. Lines drawn from all the principal ports in Northern Europe (including all British ports), to the principal centres of population in Canada and the United States all pass through the Island of Newfoundland.

At present all ocean routes between Europe and America pass either north of Newfoundland through the Belle Isle Straits, or south over the Grand Banks. The new route would pass through Newfoundland itself, traversing the island across almost its narrowest part by means of a railway.

Steamers from Europe would come to a port on the north-east coast of Newfoundland, on the south-west arm of Green Bay, one of the inlets of the great bight known as Notre Dame Bay. From Green Bay it is proposed to construct a standard gauge railway to a port on the Humber arm of Bay of Islands—a distance of 92 miles—where mails, passengers, and freight would be embarked for a Canadian port, probably Gaspé, distant 257 miles from the railway terminal on Bay of Islands, the distance on the open sea, from headland to headland, being about 215 miles. The proposal is not a new one. It was made in substantially the same form at least forty years ago by Sir (then Mr.) Sandford Fleming, who pointed out, in a Report submitted to the Canadian Parliament, that “the route which favours increased security from sea-risks, and which is the shortest in point of time must eventually become the cheapest and in consequence the most frequented.”

Three main objections were raised at that time to the Newfoundland route. These were—

- (1) The treaty rights claimed by France over what was known as “the French shore.”
- (2) The numerous transhipments and breaking of bulk involved.
- (3) The fact that the route would not be open all the year round.

Influenced by the first of these objections the British Foreign Office discouraged the scheme, the adoption of which would, it was feared, further complicate the already difficult situation on the “French shore.” Since the Anglo-French Agreement of 1904 that objection no longer exists.

And since Sir Sandford Fleming’s proposal was first made the introduction and development of the train ferry system has robbed the second objection of its force. By running the trains on to specially constructed car-ferry steamers at Bay of Islands there will be no transhipment in the former acceptance of that term and no breaking of bulk.

The third objection is the only one that still remains in force, and it is, as Sir Sandford Fleming pointed out in his Report, entirely a question whether the undoubted advantages which this route offers do not overwhelmingly counterbalance this solitary disadvantage; nor is it yet, indeed, absolutely demonstrated that ice-breaking steamers, such as are now generally employed, could not keep navigation open during the whole year.

It is claimed for the Newfoundland route that it is (A) the quickest; (B) the safest; and (C) must ultimately become the cheapest route between Europe and America.

As regards safety—and incidentally also speed—reference may be made to the section dealing with the existence of a zone singularly free from fog both on the north-eastern and on the western shores of Newfoundland. The existence of such a zone has now been conclusively demonstrated by the statistics and other information obtained with regard to it during the last three years, and this has materially strengthened the arguments presented by Sir Sandford Fleming, whose proposed route passed through St. John's and not through Green Bay.

It may be said with certainty that there is no railway in any part of the world of equal length and capable of being so cheaply and so easily constructed, which would have anything like the same effect upon the transport of mails, passengers and goods, and upon the development of new resources as would this short line across Newfoundland—

- (1) It would form an essential link in the shortest and quickest line of through communication between two great Continents.
- (2) It would bring Newfoundland into direct and rapid connection with the markets of Europe and of the American Continent.
- (3) The effect of this on the economic development of Newfoundland must be immediate, far-reaching and lasting.
- (4) By bringing Canada and Newfoundland into closer physical connection, by improving the means of communication between the two countries, it must tend to make the relations between them closer and more intimate.
- (5) It would, taken in conjunction with the establishment of train ferries between its western terminus and Canadian ports on the Gulf of St. Lawrence, provide continuous railage for the produce of Western Canada to the port on the Atlantic seaboard within nearest reach of the markets of Europe.
- (6) Even if it did not at once become a grain route its existence would be an added security for the food supply of the British Isles in the event of war, as the whole of the route to the Atlantic terminal would be under British control, and the task of defending the grain ships along the short sea route on the North Atlantic would be comparatively easy for our Navy.

It may, perhaps, be asked why a route which offers so many advantages has not already been adopted.

In reply it must first be observed that the political objection—arising out of the French claims on the west coast of Newfoundland—held good until a few years ago, and, during the thirty odd years for which this barrier existed, traffic was obliged to follow, and took, other routes. The result has been the creation of powerful vested interests in those other routes, and a natural indisposition on the part of those interests to forward the establishment of what is regarded as a rival route.

Powerful as these interests are, they cannot ultimately prevail against the plain geographical facts of the situation, supported by other interests, scarcely, if any less powerful, which would benefit by the establishment of the new route.

Some displacement of traffic there undoubtedly will be when the Newfoundland route is established. The mails will inevitably, when existing contracts have been worked out, be carried by the quickest route, and it is highly probable that at no very distant date the whole of the mail matter between Northern Europe and Canada and the United States will be carried by the new route. A quick and frequent passenger service will attract an important share of the Trans-Atlantic passenger traffic, but it is probable that the displacement will be less than is imagined or feared.

Apart from the fact that a new route creates a certain amount of new traffic it must be borne in mind that the intercourse between the two continents has enormously developed during recent years, and that everything points to a progressive increase in the number of persons crossing the Atlantic in both directions, as well as in the movement of freight. Whatever temporary checks there may be in the economic development of Canada, it can scarcely be doubted that the Dominion is even now only beginning to develop her vast resources, and the creation of additional trans-oceanic transport facilities is becoming a matter of great urgency and importance.

While, therefore, the Newfoundland route, by its superior natural facilities, must inevitably, as soon as it is properly equipped, attract to itself an important share of Trans-Atlantic traffic, there is no reasonable ground for assuming that its establishment will ultimately materially injure any existing routes. There will no doubt be a period of displacement and re-adjustment; but the following pages are intended, *inter alia*, to demonstrate that the new route will offer facilities for the development of new, or only partially developed sources of wealth, more especially in connection with the North Atlantic fisheries, and will materially contribute to the opening up of large areas of the North American Continent which have hitherto been wholly or almost wholly neglected.

It is submitted that the time has now arrived when all the conditions are favourable to the immediate establishment of the new route—the central feature of which is the construction of the railway from Green Bay to Bay of Islands and the equipment of the two terminal ports in Newfoundland, as to which full particulars are given in the following pages.

A D D E N D A.

Page 43 after paragraph 6:—"Owing to the absence of grass plains, and to the mantle of moss and lichens that covers the surface of the ground almost everywhere, there is little likelihood that it will ever become a grazing district. . . . The numerous large lakes of the several watersheds, and most of the rivers, especially those running north and east are stocked with an inexhaustible supply of food fishes of large size and superior quality, including among other species the lake and brook trout, land-locked and sea-run salmon, whitefish, pike, pickerel, suckers and ling or freshwater cod. Very little is known officially or otherwise concerning the fisheries of that great inland sea, Hudson Bay, and a great amount of wealth may be lying dormant in its waters from lack of knowledge concerning its fisheries. As regards the inland fisheries, owing to the distance from available routes to a market, they will probably never be used to their full extent, and even the best situated lakes will not be fished for many years to come, or until railways are built through the interior."

"The peninsula of Labrador is a high rolling plateau, which rises somewhat abruptly, within a few miles of the coast line, to heights between 1,500 and 2,500 feet, the latter elevation being somewhat greater than the watershed of the interior. The interior country is undulating and is traversed by ridges of low rounded hills, that seldom rise more than 500 feet above the general surrounding level. . . . To sum up the foregoing statement of levels—the interior of the peninsula is almost flat, so that in an area of 200,000 square miles there is not a difference of general level of more than 300 or 400 feet, and the highest general level of the interior is under 2,500 feet." (*A. P. Low. Report on Explorations in the Labrador Peninsula, Geological Survey of Canada.*)

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NEWFOUNDLAND TRANS-ATLANTIC ROUTE.

In the summer of the year 1904, Mr. H. C. Thomson made an exploring journey through the Northern Peninsula of Newfoundland, with the intention of ascertaining whether a railway could be constructed through it, at a reasonable cost, to the Straits of Belle Isle; to connect there across the Straits, either by ice-breaking steamers or by a tunnel, whichever might be found most feasible, with the railways which before long must be built through Labrador from Quebec, Montreal and Winnipeg.

He had previously, in 1899, canoed up one of the Labrador rivers, the St. Marguerite, which enters the sea close to the Bay of Seven Islands, for about a hundred miles, as far as the rolling table-land which forms the interior; and had come to the conclusion that although it would be both difficult and costly to build a line along the north shore of the Gulf of St. Lawrence, owing to the immense number of rivers of great size which would have to be bridged, yet it would be perfectly possible, and at no great cost, to run a line up one of these rivers to the height of land, and to continue along it westwards to Rupert's House, and ultimately to Winnipeg; thereby obtaining a phenomenally short route to the wheat fields of the Canadian North-West.

At that time the Grand Trunk Pacific had not been built; but now that it has been, the project would be a much simpler one, for the Labrador line could connect with it either at Lake Chibogamou or Lake Abitibbi, or at some other convenient point; and so only some eight hundred miles of railway would have to be built instead of close upon two thousand miles. Charters, too, have recently been granted by the Dominion Government for railways to run through Labrador both to Cape St. Charles and to Hamilton Inlet; though these harbours will be ice-bound for a great portion of the year, whereas a connecting line through Newfoundland by way of a tunnel under the Straits of Belle Isle would provide an outlet to the harbour of St. John's, which is an open harbour all the year through.

These harbours will also run the risk of sudden and prolonged interruptions of traffic, owing to wash-outs and snowfalls on the railways, which may delay both freight and passengers for an indefinite time. This risk could be largely obviated if all these Labrador lines were to converge, by means of a tunnel under the Belle Isle Straits, to a common port in Newfoundland to which steamers could safely come, knowing that they were always sure of obtaining freight and passengers without any undue delay.

On Mr. Thomson's return from his journey in 1904, the Newfoundland Government expressed their willingness to grant the necessary authority to build the proposed line through the Northern Peninsula to any responsible corporation or firm willing to undertake it. It was found, however, that at that time it would be impossible to get anyone even to consider the question; the cost of the enterprise, especially of the tunnel, being altogether too great; for Canada had then only just entered upon the marvellous era of development which has been so striking a feature of the last ten years.

It was decided therefore, for the time being, to defer the more ambitious project, and to endeavour instead, as an alternative comparatively easy of realization, to procure the establishment of a transport system, parallel to the projected line through Labrador, but a little to the south of it, which would entail much less railway building, and would therefore be much less costly; but which would have, on the other hand, the disadvantage of transhipment. This line could be obtained by making use of Green Bay, on the north-east

coast of Newfoundland, as an Atlantic port, building a short broad gauge line to the Bay of Islands on the west coast, and from there establishing a steamer connection with Gaspé and other suitable ports on the Canadian Mainland.

Green Bay was chosen as the Atlantic terminal, instead of White Bay, which would seem at the first glance to be the better port (the distance from there to the Bay of Islands, being only seventy miles, instead of about ninety from Green Bay), because Green Bay, owing to the configuration of the land, is remarkably free from fog—much freer than White Bay—and because it is also more sheltered, and freer from ice in the early spring. For these, and for various other reasons, Green Bay had for many years been marked out by the Newfoundland Government as a possible Atlantic terminal; a Government survey having been made from it to the Bay of Islands as far back as 1879.

For the establishment of this Green Bay route Mr. Thomson obtained the co-operation of a financial house with London and Paris connections, and the Newfoundland Government entered into a contract with them and him jointly which was confirmed by and embodied in an Act of the Legislature dated 26th March, 1907. (*See copy of the Act.*)

This contract was more in the nature of a concession than a contract; the only obligation imposed upon the contractors being an undertaking to make a preliminary survey for the railway from Green Bay to the Bay of Islands, or to Bonne Bay, whichever they might decide upon as the west coast port, and to negotiate with the different governments and transportation companies which might be interested in the establishment of the proposed line.

That undertaking has been fully carried out, first by the contractors jointly, and subsequently by Mr. Thomson alone. The projected route was brought to the notice of the Committee appointed by the British Government to investigate the possibility of establishing what was known as "The All-Red Route;" and Mr. Thomson's evidence was taken; but the financial house referred to soon after came to the conclusion that owing to the necessity of transhipment there was no hope that the Green Bay route could ever be included in, or form a part of that route, and that for other reasons also they did not desire to go on. They decided, therefore, to abandon the undertaking.

Mr. Thomson, however, still believed in its practicability, and he asked the Newfoundland Government (Sir R. Bond then being Premier) which they would prefer—that he should give it up, or that he should go on with the enterprise by himself? They asked him to go on with it, and he did so on the clear understanding that all he was required to do was to complete the Survey, which had only been partly made, and to endeavour to establish the value of the route rather than to form a company to initiate the enterprise. Indeed, it was expressly understood that he would not form a company unless there seemed a reasonable probability that the company so formed would be able to carry the matter to a successful termination.

This understanding Mr. Thomson has complied with in every particular. The preliminary survey stipulated for by the Act has been completed from Green Bay to Bonne Bay by Mr. Bruce and Mr. Mostyn, acting under the direction of Mr. R. Elliott-Cooper, as consulting engineer; the estimated cost of the line being about £460,000, with a maximum grade of $1\frac{1}{2}$ per cent. except for the section between Deer Lake and Bonne Bay, where the maximum grade would be $2\frac{1}{2}$ per cent. (*See Mr. Elliott-Cooper's reports.*) Three miles of initial construction from Green Bay was also completed in compliance with the clause relating thereto in the contract, and with the stipulations of the Newfoundland Government. (*See Mr. Elliott-Cooper's Report on Initial Construction.*)

A great deal of information has been collected and collated with regard to the freedom of Green Bay and its approaches from fog; and a careful study has been made of the question of train-ferries, to ascertain whether the necessity for transhipment cannot be avoided by the adoption of a service of large sea-going train-ferries similar to those in use on the Great Lakes of America, and in other parts of the world, so that there might be a possibility, after all, of Newfoundland being included in the great Imperial chain of communication.

Mr. Mostyn, in his last report, suggested that Bay of Islands should be selected as the west coast port instead of Bonne Bay, as an easy grade could be obtained by running the line along the west shore of Deer Lake, that being the line surveyed for the Newfoundland Government by Mr. Chas. Harvey in 1879. (*See Mr. Harvey's Report on his Survey.*) Bonne Bay, it should be mentioned, having been originally selected in view of the line being ultimately extended northwards to the Straits of Belle Isle.

Mr. Thomson subsequently went over the whole of the line from Green Bay to Bonne Bay, and also over this alternative line to Bay of Islands with an American engineer, Mr. J. W. Ijams, acting on behalf of certain Americans who were desirous of looking into the matter; and Mr. Ijams also was of opinion that Bay of Islands would be the more suitable port, and it has accordingly been decided upon. The maximum grade would be only $1\frac{1}{2}$ per cent., which with a reasonable amount of expenditure could be reduced to .6 per cent. except for the first five miles out of Green Bay where it would be from one to one and two-tenths per cent. (*See Mr. Ijams' report.*) The survey to Bonne Bay will, however, still be of value at some future day, when the railway is continued up the west coast to the Straits of Belle Isle, for that is the only possible way by which the line can be carried through the rugged mountains of the Long Range to the low-lying lands of the west coast.

The five years fixed by the contract for the completion of the enterprise expired on 26th March, 1912, without Mr. Thomson having succeeded in making any substantial progress towards the formation of the Company. The Newfoundland Government, therefore, were unwilling to grant him an extension of time under the original contract; but in recognition of the work he had done they entered into a fresh agreement (to expire on 15th February, 1914) with him, personally, undertaking under certain specified conditions to give legislative authority for the building of the railway from Green Bay to the Bay of Islands, with a grant of the right of way through ungranted Crown lands and various other concessions. (*See Letters of Agreement from the Newfoundland Government.*)

Since then Mr. Thomson has succeeded in obtaining the co-operation of various influential persons in Great Britain and Canada who are willing to join him in the formation of a Company in compliance with the terms of the said Letters of Agreement with the Newfoundland Government. (*See Letter of Undertaking.*) He also placed the matter before the Quebec Board of Trade, which passed a Resolution strongly approving of the project.

QUEBEC, 28th November, 1912.

"That the Council of the Quebec Board of Trade, having listened with much attention to the explanations of Mr. Thomson as to his project for a railway across the Island of Newfoundland from Green Bay to Bay of Islands, and for a connecting line of large train ferry steamers to carry fresh fish in refrigerator cars, and other traffic across the Gulf of St. Lawrence to Gaspé and other ports in Canada, which project has had the official endorsement of the Government of Newfoundland, desires to express its hearty approval of the usefulness and feasibility of the project, which will establish a connection between the railway systems of Canada and Newfoundland, benefit the fisheries of both countries, and tend to increase the trade and to strengthen the relations between the two Colonies, so much to be desired."

The Council of the Montreal Board of Trade, which Mr. Thomson also addressed, is giving the matter further consideration through its Harbour and Navigation Committee.

If the railway is not begun within two years from the date of legislative confirmation of this agreement, the concession to build it is to lapse, but there is to be no penalty of any kind. The agreement, in fact, is to grant a concession, not to enter into a contract. That being the case naturally no land grant could be promised, and no subsidy as in the original contract, under which certain specified work was agreed to be done.

Nevertheless, if an undertaking were to be given to build the line by any corporation or firm in a position to carry the matter through (provided they were satisfied, after due

investigation, of its commercial practicability) it is believed there would be no difficulty in obtaining the restoration of the original grant of land, the Newfoundland Government being anxious that the waste lands of the island should be developed as speedily as possible. If they were convinced that the matter was being undertaken in earnest, both political parties would be in agreement as to a substantial grant of land, even though there might be objection in some quarters to a money subsidy.

Mr. Donald Morison, the present Minister of Justice, (who was then in opposition) speaking during the debate for confirmation of the original contract, made this quite clear. "To the grant of the right of way," he said, "he had no objection. To the grant of terminal facilities he had no objection, except that he did not think that the company should have a monopoly of all the land around the terminus. Our own people should get a chance to stand in as well as strangers. There was no objection to the grant of 125,000 acres of land. He was at one with the Minister of Justice (Sir E. P. Morris) when he said they were no good undeveloped, and they should be glad to welcome anyone who would take them and put money into their development. Then the grant of minerals—he would not quarrel with that—they stood in the same position as the lands unless developed. Free entry of certain goods—no exception to that; exemption from light dues, that was a small matter. Then he came to the grant of subsidy of \$75,000 a year. He was against that."

The then Minister of Justice, Sir E. P. Morris (who is the present Prime Minister) said during the same debate:

"The land that we were giving to the contractors was a mere bagatelle. It was of no earthly value to them if they did not work the land, and make it valuable to our people in the way of labour. . . . He voted for this measure because it meant greater facilities for tourist traffic to this country. It meant also cheaper freight. It meant opportunities for the development of cold storage. It meant cheapening of produce to the consumer by the value to the trade of the rapid turn over. It was a big advertisement to the world of our pulp, our minerals, our oils and our free lands, and it spelt permanent employment for hundreds of our people arising out of the permanent works of the Company. It was not intended by this measure to supersede any other route. There was room enough for all."

Under the original contract, for the operation only, not for the building, of the Reid Newfoundland Railway, the Government agreed to "grant in fee-simple to the contractor 5,000 acres of land for each one mile of main line or branch railway throughout the entire length of line to be operated," in respect of its operation for ten years, and also, in addition, to pay \$60,000 a year by way of a mail subsidy. Substantial grants of land have also been given to the Reid Newfoundland Company for the operation of the branch railways recently constructed and still in course of construction. In Canada even larger grants of land are given to assist the construction of railways through unpopulated districts. The North Railway Company, for the construction of a railway from Montreal to James Bay, have recently been granted by the Quebec Government a subsidy of 8,000 acres per mile for the section from Montreal to a point on the National Trans-Continental Railway, and 10,000 acres of land per mile, not convertible into money, for the section from the said point to a port on James Bay, for a total length of not more than 550 miles, the original grant of 5,000 acres being considered insufficient.

If, therefore, there is any serious intention to carry the enterprise through, there can be no doubt that the co-operation of the Newfoundland Government will be warm and ungrudging. But the questions which will naturally arise in the minds of those who are asked to interest themselves financially in the matter are :

- (1) Of what value are these lands, should a land grant eventually be obtained.
- (2) What are the especial advantages (a) Geographical (b) Commercial (c) Imperial, of the proposed route.

These questions are dealt with in the following pages.

“THE VIKING TRACK.”

GREEN BAY AS AN ATLANTIC TERMINAL.

A glance at a globe, not at a map drawn on Mercator's projection, will make clear at once the meaning of the name “Newfoundland Trans-Atlantic Route.” It will be seen that Newfoundland, the furthermost portion of land to the east of the American Continent, forms a natural connecting link in all Northern Trans-Atlantic travel; that it is the stepping stone, the alighting place as it were, between Europe and America; and that through America it provides the shortest highway to New Zealand, Australia and the Far East, by a route which is essentially inter-Continental in character rather than merely inter-Colonial. It is, in fact, the old Viking track, taken by Leif and Eric when they edged their way across to the unknown world, by way of the Faroe Islands and Iceland, to Labrador and Newfoundland, and thence downwards to the coast of Maine; and it is still the natural highway to America from all Northern Europe; from Great Britain and Germany, as well as from the Scandinavian Countries and Russia. That is why the proposed route by Green Bay and Gaspé has been given the distinctive name of the “Viking Track.”

It will afford the shortest route to America for all ports in Great Britain and northern Europe; but the advantage of it will, perhaps, be greatest for the Scandinavian ports. The saving from them in distance and time, to Chicago and Winnipeg, and the North-West, both of Canada and of the United States (to which the Scandinavian emigrants chiefly go) being greater than from ports further to the south.

The establishment of this route is no new idea. For years its desirability has been discussed, and its advantages recognised. So far back as 1873, a Select Committee of the Canadian Legislature, appointed to enquire into the best and most direct route for mails and passengers between Europe and America, found in favour of the route through Newfoundland; and the Government of that Colony in consequence, in 1875, caused a railway survey to be made through the island under the direction of Mr. (now Sir) Sandford Fleming (who had reported to the Canadian Committee, strongly recommending the Newfoundland Route), from St. John's on the east coast to St. George's Bay on the west coast; the connecting ports suggested, in Canada and Ireland respectively, being Shippigan and Valentia. (*See Sir Sandford Fleming's Report.*)

On the completion of this survey, the Newfoundland Legislature passed a series of resolutions authorising the building of the railway, and sanctioning a land grant, and the payment of an annual subsidy of \$120,000 in connection therewith; and the Government, thereupon, in 1878, notified the Colonial Office that they proposed to invite tenders for the construction of the line, and issued a memorandum setting forth what was desired, and stating that the plans of the survey were open to inspection.

Unfortunately this enterprise, so promising in its inception, came to an untimely end. The British Government forbade it to be proceeded with because of its possible interference with French fishing rights then in existence on the west coast of Newfoundland; and so the whole proposal had to be deferred. Had it been carried out, at a time when steamship travel was still almost in its infancy, there can be no doubt that it would have drawn to itself a large portion of the growing Atlantic trade. The injury inflicted on Newfoundland was very great, and that injury would be accentuated now if the Colony were to be excluded from participation in the *All-Red Route*. (*See pamphlet “The Imperial Value of Ireland and Newfoundland.”*)

Moreover, owing to the Anglo-Japanese Alliance, and to the construction of the Grand Trunk Pacific Railway, the salient fact underlying the project—that a line through Newfoundland gives the shortest and speediest access through America to the Far East—has become even more important and insistent now than it was then.

Shippigan and Valentia are both too small and too difficult of entry for the vastly larger ships of the present day, but either Gaspé, in the Province of Quebec, or Chatham in that of New Brunswick, would make a suitable port in Canada, whilst in Ireland, the choice would be between Blacksod Bay, Galway, Killarey and Foynes, whichever might be deemed most desirable for Irish interests; they all have strong advocates, and they are all good ports.

It has recently been announced that the All-Red Route project has, for the time being, been definitely abandoned, the British Government being unwilling to contribute the large subsidy required for the establishment of the 25-knot Steamer Service which was proposed. This decision will materially assist the establishment of a west of Ireland port, with a steamer connection between it and Green Bay, for it will enable a rapid mail service to be maintained between Great Britain and Canada at a minimum of expense, inasmuch as the cost will be distributed amongst the different railways and steamships concerned, and the pressure of competition will bring it down to the lowest practicable amount. So far as Ireland is concerned, the Irish mail goes twice a day in any case. There will, therefore, be little, if any, further expense involved in the carriage of the Trans-Atlantic mail; and when in the same way the Green Bay—Gaspé line has become the medium of regular and constant communication between Newfoundland and Canada, the extra cost of the Trans-Atlantic mail to or from Green Bay will be comparatively small. Over and above the smaller cost it will entail (which after all is a very material question), the establishment of the Green Bay route will be of importance commercially, as well as strategically, for it will bring Newfoundland into closer touch both with Great Britain and with Canada, and will check the tendency which has been so marked of late years for the Newfoundland trade to go to New York instead of either to Great Britain or to Canada.

Green Bay as a Port.

Green Bay, on the north-east coast of Newfoundland (the line from which will connect at Howley with the railway to St. John's), has been chosen as the Atlantic port in Newfoundland instead of St. John's, chiefly because, being situated well to the north of the Grand Banks, the approach to it is much more free from fog than is the approach to St. John's; a most important consideration in the selection of a rapid mail route.

Bay of Islands.

On the other side of the Island, the Bay of Islands has been taken for the St. Lawrence port, because it is the nearest harbour on the west coast to Green Bay (the located line being 92 miles), and about the same distance from Gaspé as St. George's Bay is from Shippigan. It is a magnificent land-locked harbour, with deep water and good holding ground, and room enough for any quantity of shipping. Otherwise the route at present proposed is substantially the same as that put forward in 1878.

Green Bay a safe harbour to make.

Captain Eli Dawe, the Minister of Marine and Fisheries, said during the debate in 1907: "From Gull Island to South-West Arm there was not a single rock or shoal. The approaches to the South-West Arm are perfectly safe; there was no obstruction, and the percentage of fog was very small."

Captain Charles Dawe, the leader of the Opposition, said, however, in answer to this: "It was very important, before any selection for a terminal port on that side of the water was determined upon, that a survey of the coast should be made; or if not a survey, at any rate that the Government should obtain the opinions of experienced men."

Since then there has been a new Admiralty Survey of the whole of Notre Dame Bay, including Green Bay—(*See Admiralty Chart*).

A Report on the navigation aspects of the route has been obtained from Captain Whitley Dixon, R.N., who was one of the naval officers who made the previous survey of Notre Dame Bay in 1879—(*See Report*). "The entrance to South-West Arm," he says, "is deep, free from shoals, easily made in clear weather."

Several of the best-known Newfoundland Coastal Captains, the experienced men whom Captain Dawe suggested should be consulted, have stated what they know regarding the freedom of Green Bay from fog, their statements being given in the section dealing with that subject; and Captain John Bartlett, of Brigus, who stands high amongst Arctic navigators, has very kindly written Mr. Thomson the following letter, dated Quebec, 27th November, 1912, giving his opinion of the route from a seaman's point of view.

"I have much pleasure in complying with your request for an opinion of your proposed route from the United Kingdom to Canada, *via* Newfoundland, particularly on the fog and ice conditions to be met with on the east coast of Newfoundland. In my many years experience on this coast I have crossed your proposed route many times and at all seasons, and I have invariably found this track to be freer of fog than any other part of the east coast. Your selection of Green Bay as a landing place and a safe harbour cannot be surpassed, free from rocks and shoals, making easy navigation right to the bottom of the Bay, the shores of which are bold and picturesque.

From the 20th of May until about the 20th December, the ice conditions will not present any obstacles. There will be exceptional seasons when ice may be encountered later in the spring, brought about by a prevalence of north-east winds, which would pack the ice in the Bay. As your route will pass north of the shallow ground extending from Funk Island you will not encounter so many grounded icebergs as will be met further south. It is scarcely necessary to make any comment about the St. Lawrence port of your route; it would be difficult to get easier navigation than will be found here. The Gulf will be found free of ice earlier than the east coast of Newfoundland. Permit me to say that I consider your route the safest and shortest that has yet been proposed and I can heartily endorse it."

Period for which route is available.

One great objection to the Green Bay Route is the short period, from eight to nine months, for which it will be open—but that only applies to rapid mail boats. For cargo boats, properly constructed to contend with ice, it will be open for nearly all the year. And even for mail boats the objection is not so great as it appears at first sight. Sir Sandford Fleming dealt with this aspect of the question in a very few words:—

"This route would not be open for traffic throughout the whole year; during certain months, the direct course of steamers would be so impeded by floating ice, that it could not with certainty or safety be traversed. It, therefore, remains to be seen whether the route has sufficient advantages whilst open to recommend its establishment and use, during probably not more than seven months of the year. In this respect the Newfoundland route must be viewed precisely in the same light as many other lines of traffic on this continent, and possibly it may be found of equal importance. Of these works may be mentioned the Canals of Canada and the United States, which, although closed to traffic during winter, have justified the expenditure of enormous sums of money in their original construction, and in repeated enlargements and extensions."

Sir Sandford Fleming was writing of a route to St. John's, not to Green Bay, but it may be noted that Captain Whitley Dixon, in his report states that "The route would compare favourably in this respect (ice) with the Belle Isle, or Cabot Strait routes, or direct to St. John's, Newfoundland,"—that is to say, for the period during which it would be open.

When the tunnel is built the question will not arise, but quite apart from the tunnel, by using ice-breaking train-ferries, there is no doubt whatever that the Gulf of St. Lawrence can be safely navigated all through the winter. (*See section dealing with winter navigation of the St Lawrence.*) And by using cargo boats properly constructed to contend with ice, it is believed that Green Bay could also be kept open. It is only for rapid mail boats that it would be unavailable, for from three to four months; that is to say, from the end of January to the end of April, or the beginning of May.

To obviate the inconvenience caused by this closing of the route, the agreement gives power to build a line, from some point on the Green Bay line, either to St. John's, or to such port on the south coast, as may be agreed upon with the Government. This would enable the route to be used all the year without difficulty.

ADVANTAGE OF ROUTE FOR MAIIS AND PASSENGERS.

The Newfoundland route will be the safest of all routes, inasmuch as it will eliminate the dangerous approach to the Gulf of St. Lawrence, and the difficult navigation of the river St. Lawrence, which (admirably buoyed and lighted though the river now is), must always be a serious element of risk in the operation of a fast mail service.

Newfoundland stands right across the entrance of the St. Lawrence, forming the great land-locked sea, known as the Gulf of St. Lawrence, to which access has to be obtained either by the narrow and perilous Belle Isle Straits on the north, or by the Cabot Straits on the south. Some idea may be formed of the dangerous nature of the former Straits from the following extracts taken from the *Newfoundland and Labrador Pilot* (4th Edition, 1907), published by order of the Admiralty :—

Dangers of the Belle Isle Straits.

"In the Strait of Belle Isle dense fog prevails during summer, and sometimes lasts for several days at a time. From June to September, 1898, thick fog was prevalent, with either easterly or westerly winds."—p. 14.

"During a period of 40 days in July and August, when simultaneous observations were made on both sides of the Strait, fog, mist, etc., occurred on 60 per cent. of the days on the Labrador side, and on 40 per cent. on the Newfoundland side,"—p. 626.

"The danger arising from this constant fog is heightened by the ever-present danger of ice Some of the bergs ground, while others change their position The bergs were much more numerous in some seasons than in others; 200 bergs and large pieces of ice were counted in the Strait in August of one year, whilst only half-a-dozen could be seen in the following August. With westerly winds the Strait is often clear of bergs. The bergs are a considerable source of danger to shipping during the prevalent thick fogs."—pp. 25, 26.

And of the South Coast of Newfoundland.

The Cabot Straits are not in themselves difficult, but the approach to them is full of risk; and the dangers of Cape Race, the graveyard of the Atlantic, and of the almost perpetually fog-enshrouded south coast of Newfoundland, are too well known to require dwelling upon. The most convincing proof of the way in which they are regarded is to be found in the high insurance rates charged by marine underwriters for St. Lawrence ports.

"The south coast of Newfoundland eastward of Cape Ray is broken, rocky and dangerous. There is often a strong indraught towards the land and the tidal streams are influenced by the wind; while southerly and easterly winds, and often also south-westerly winds, bring a thick fog, which is most dense near the lee shore."—*St. Lawrence Pilot*, p. 42.

Reasons for Safety of Green Bay Route.

- (A) The main feature of the route making for safety is that the approach to Green Bay for vessels from European ports coincides with the line of least occurrence of fog; ships passing to the north of the Grand Banks where the fog is almost perpetual, and to the south of the dense fog which so often envelopes the Straits of Belle Isle during the summer months.
- (B) It is far removed from the congested ocean trade-ways, both to the south and to the north of it; the danger of collision is therefore less.

- (c) It passes well to the north of the Grand Banks, so another element of danger is eliminated, which every North Atlantic traveller knows and dreads—that of running down the boats fishing on the Banks. This danger is every day becoming greater, owing to the increasing speed of the steamers passing over the Banks.
- (d) The danger from ice will not be so great as on the northerly route, through the Straits of Belle Isle, where the ice-bergs are drawn by the current into the Straits, and remain stranded there for the greater part of the year, until they melt; or, as on the southern route, through the Banks of Newfoundland, where they are hidden in fog, and where, as they melt gradually down to the water's edge, they become doubly dangerous because more difficult to detect.

On the Green Bay route, it is true, ice will be encountered in its movement to the south in June, and early in July, but after those months it will have passed down, and have disappeared. Moreover, during that time there will be a definite ice-stream to be crossed, which will be much less dangerous than the scattered bergs drifting hither and thither on the banks.

It will also be the Pleasantest Route.

Although it goes so far north, the ocean passage will be a pleasant one for passengers, for shortly after leaving Green Bay the Gulf Stream will be entered, and will be followed right across the Atlantic, thus ensuring an equable climate.

"Of course this route would not be possible in mid-winter, as then ice floes block the approach, but for the rest of the year it would offer an ideal trip sufficiently diversified to form an unending source of pleasure to those travelling by it, and passing through an area remote from the torrid summer heat of the American States, and possessing a climate more salubrious than any which is traversed by steamship lines at present." *New York Herald, April 9th, 1907.*

Cost of operating Steamers would be less.

The distance being so short, it is obvious that a rapid Trans-Atlantic service could be operated to Green Bay at greatly less cost than to either New York or Montreal. Only half the number of boats would be required, and those of much smaller size, for they would only have to carry half the amount of coal and of provisions.

Boats of less speed could be used.

From Hamburg, the mails could be delivered in New York in not much longer time (and in Chicago in the same time), if sent *via* Green Bay by a 17-knot boat, than if sent by a 24-knot boat to New York direct, and the difference in cost would be immense.

The time now taken from Hamburg to New York by the fastest 24-knot German steamers is about seven days, and the mails are delivered in Chicago in about eight days. The time *via* Green Bay by a 17-knot steamer would be as follows:—

							HOURS.
Hamburg to Green Bay (2,416 miles) ...	...	...	...	...	...	...	142
Green Bay to Bay of Islands (92 miles), allowing for delay in transhipment	...	...	...	...	...	...	4
Bay of Islands to Gaspé... ...	...	...	...	...	...	...	10
Gaspé to New York ...	...	...	...	...	...	...	26
							182
							OR 7 DAYS, 14 HOURS

as against seven days by a 24-knot boat, and $10\frac{1}{2}$ days by a 17-knot boat from Hamburg to New York direct.

To Chicago the advantage would be even more marked:—

							HOURS.
Hamburg to Gaspé <i>via</i> Green Bay ...	...	...	...	...	...	...	156
Gaspé to Chicago ...	...	...	...	...	...	...	40
							196
							OR 8 DAYS, 4 HOURS

as against 8 days *via* New York by a 24-knot boat, and $11\frac{1}{2}$ days by a 17-knot boat.

It must be borne in mind, too, that the train service in Canada and the New England States is every day being accelerated, and that it is easier and less costly to increase the speed of a train than to increase the speed of a steamer.

Advantage of a west of Ireland port.

While the advantages of the Newfoundland route are in no way dependent on the establishment of new terminal ports in Europe, it is obvious that if some of the proposals now under discussion were to be adopted, very interesting and important results might be obtained.

If, for example, Blacksod Bay should become an Atlantic terminal, a phenomenally short mail route, by way of Green Bay, could be established to New York and Chicago as well as to Montreal. With boats of 26 knots, of which speed, according to an article in the June number for 1913 of the *National Waterways Magazine*, it is proposed that the boats to run from Blacksod Bay shall be, the times taken would be as follows:—

	HOURS.					
London to Blacksod Bay	14
Blacksod Bay to Green Bay	65
Green Bay to Bay of Islands	2
Bay of Islands to Gaspé	10
Gaspé to Montreal (560 miles)	12
						103
OR 4 DAYS 7 HOURS						

If we allow 4 hours for changes at Blacksod Bay, Green Bay, Bay of Islands and Gaspé (the published Blacksod Bay time table allows one hour only at Blacksod Bay), this would be exactly counterbalanced by the 4 hours gain of time going westwards, so the times from London to Montreal would be 4 days 7 hours, to New York, 4 day 18 hours, and to Chicago, 5 days 4 hours.

To give an example. The Mail could leave London on Saturday morning at 11.30 a.m. and be delivered in Green Bay at 1.30 p.m. on Tuesday, in Montreal at 7 p.m. on Wednesday, in New York at 7.35 a.m. on Thursday, and in Chicago at 6 p.m. on Thursday.

This would be both quicker and cheaper than if the mails were sent *via* Blacksod Bay and Cape St. Charles, and the saving in cost would, indeed, be immense. It would in fact be more than enough to provide a subsidy sufficient to run the 26-knot boats required both on the Atlantic and on the Gulf. Moreover the Newfoundland route can be established with a minimum of delay, while many years must elapse before railway connection is established between Quebec and Cape St. Charles.

Not that it would be either necessary or desirable to run such quick boats; for with boats of moderate speed, say of twenty knots, between Blacksod Bay and Green Bay, the mails could be delivered in New York as quickly as with the present 26-knot boats from Liverpool to New York direct, and at immensely less cost. Just in the same way in which, as has been previously shown, the mails from Hamburg could be delivered *via* Green Bay with a 17-knot boat only 14 hours slower than by a 24-knot boat direct—whilst with a 20-knot boat they could be delivered six hours quicker. That is why many people believe that the future of Atlantic shipping will be for very luxurious boats of great size and of moderate speed to ply to New York direct, and for small boats of great speed to use the shortest possible ocean route, so as to utilize as much as possible the existing local railways and steamship connections, and thereby reduce the expense, whilst supplying at the same time an exceedingly rapid mail service. Sir Sandford Fleming, whose report is a perfect marvel of prophetic foresight, said in 1873:—

"On railways doing a large business the traffic is properly classified: the fast trains are run to carry passengers and mails only, whilst slow trains are used to convey heavy freight, a similar classification of ocean traffic may be suggested. Freight will naturally go by the cheapest mode of conveyance while passengers and mails will seek the speediest."

"It is well known that the shape of a steamship, other things being equal, governs the speed. The shape again depends on the load she may be constructed to carry: if the ship is required only for mails and passengers *and such voyages as need but a small quantity of fuel*, she may be constructed on a model both sharp and light, and thus be capable of running more rapidly than if built to carry heavy and bulky loads. It is quite obvious therefore that a steamship constructed especially to run between St. John's and Valentia, and for the purpose of carrying only passengers and mails, with such light express matter as usually goes by passenger trains, would attain a much higher rate of speed than existing ocean steamers. . . . It would not take a very large proportion of passengers crossing in any one year to give employment to a daily line of steamers on the Short Ocean Passage route from St. John's to Valentia or to Galway."

And with the enormously increasing passenger trade between Europe and America, it cannot be long before this daily line foretold by Sir Sandford Fleming, will become a matter of necessity. The line is sure, also, to lead to a great increase of tourist traffic, not only to Newfoundland, but also to Labrador, and to Iceland, similar to that which now goes to Alaska from America, and to Norway from Europe.

RELATION TO ALL-RED ROUTE.

Newfoundland has been fittingly styled "The Gatekeeper of the St. Lawrence," the island absolutely controlling the approach to Canada. It would be an easy matter to blockade both the Straits of Belle Isle (which are only $9\frac{1}{2}$ miles in width at the narrowest part) and the Cabot Straits (which are 57 miles in width), and so to shut off all access to, or egress from, the St. Lawrence, and thereby to deprive the British Isles of the greater portion of their food supply, but it would be impossible to blockade the whole of the eastern and north-eastern coast of Newfoundland. The strength of a chain is but the strength of its weakest link, and the long line of 3,000 miles of communication through Canada will be of little value if the means of approach to it be left in jeopardy. Moreover, the distance between Ireland and Newfoundland being so short, the danger of capture of convoys in time of war would be materially diminished. If, therefore, any scheme of Imperial inter-communication between Great Britain and the Colonies should eventually be established, such as is contemplated by the *All-Red Route*, the route *via* Newfoundland could hardly fail to be selected to form an integral part of it; the more so that it would impose a less onerous burden both on the British and on the Colonial tax-payers, for it would necessitate a much smaller subsidy than if it were to go direct from a British to a Canadian port.

Isolation of Newfoundland.

The proposed route would lead to an increased trade, and to closer relations between Newfoundland and Canada. At present it takes from three-and-a-half to four days to go from St. John's to Montreal. By the Green Bay route the time would be reduced to less than two days. Sir Joseph Ward has laid stress on the isolation of New Zealand, and has declared that it must be broken down; but Newfoundland is a great deal more isolated; the shipping of both hemispheres sweeps by her shores, within a mile or two of Cape Race, but hardly any of it calls at St. John's. More than forty years have passed since it was written, yet in these days when the naval supremacy of Great Britain is a matter of such earnest consideration, it may not be amiss to recall a portion of the eloquent passage with which Sir Sandford Fleming concluded his report:—

"The route which favours increased security from sea-risks, and which is the shortest in point of time, must eventually become the cheapest and in consequence the most frequented. If then the route proposed across Newfoundland and Ireland avoids many of the dangers of existing routes and reduces the ocean passage proper to 100 hours (*now about seventy*); would not the current of travel naturally seek this route in preference to others, especially when time would be saved thereby . . . These are

purely commercial considerations, and however important they may be as such, the statesman will readily perceive in the project advantages of another kind. It may be of some consequence to extend to Newfoundland, as well as to the other Provinces of North America, the benefits of rapid inter-communication. *It must surely be important to the Empire to secure in perpetuity the control of the Great Highway between the two Continents.*"

Ireland and Newfoundland are financially weak, but strategically strong; exclude either of them from the *All-Red Route*, and it will lose its Imperial significance, and much of its Imperial value.

The Bay of Islands and Gaspé Train Ferry.

The following letter is an interesting comment upon Sir Sandford Fleming's proposal and the way in which it has been modified by the adoption of train ferries:—

H. C. THOMSON, Esq.

QUEBEC, 14th February, 1912.

DEAR SIR,

I have read with much interest your pamphlets, and have followed carefully your explanations as to the proposed railway across the northern part of Newfoundland and its connection on the one side with a line of fast steamers to Ireland and on the other with a train ferry steamer to Gaspé.

I was at first sceptical as to the utility of a route requiring the inconvenience of transhipment of passengers, mails and freight at a port in Newfoundland, but after careful consideration of all its points, it does seem to me that your project has many advantages and much merit.

I understand that Green Bay on the east coast of Newfoundland is an excellent harbour, in what is called the fog-free zone, that is to say, a portion of the Newfoundland coast which is free, or almost free, from the fogs which cause so much delay and risk to shipping at the Straits of Belle Isle on the north, and on the Banks and the Cape Race route to the south of the island. A short railway of ninety miles will take you across the narrow neck of land to Bay of Islands on the west coast, immediately opposite Gaspé. Passengers, mails and fast freight will be transferred to trains at Green Bay, and these trains will be carried through on the train ferry to Gaspé and thence to Quebec, Montreal and western points without transhipment.

I understand further that the idea is to make Green Bay a port of concentration for trawlers and fishing boats fishing in Northern Newfoundland, Labrador, and other northern waters, and to carry fresh fish in refrigerator cars from Green Bay to all parts of Eastern Canada and the United States, in the same way as the whole of Great Britain is supplied with cheap fresh fish from the trawling fleets of the North Sea which transfer their catches into iced cars at Aberdeen. That railwaymen consider this practicable is evidenced by the letters addressed to you by the General Managers of such great railways as the Delaware & Hudson and the Erie, offering their co-operation. It seems to me that the endorsement of your project by men of such standing is unanswerable.

Your figures show that with steamers of equal speed, the English mails could be landed in Montreal 12 hours faster by your route than they are at present.

I believe the train-ferry project between Bay of Islands and Gaspé is quite practicable, in winter as well as in summer. These train ferries are most successful at Detroit, Lake Michigan and Ontario, and across Lake Baikal in Siberia, where the ice is said to be more troublesome than in the Lower St. Lawrence, and there is the fact of successful winter navigation of the Baltic between Stockholm and Helsingfors. You have also the strong evidence of Captain Bernier, the celebrated Arctic navigator, of Captains Couillard and Lachance, and of Mr. Fafard of Pointe des Monts, all men of long experience and thoroughly acquainted with ice conditions in the Gulf of St. Lawrence.

It may be argued that train-ferry steamers will carry much less tonnage in cars than they would in bulk, and that therefore the cost of transportation will be greater. This is true, but the freight you propose to transport is perishable and requiring despatch, and the avoidance of transhipment and handling, and can therefore afford to pay a higher rate.

The geographical features of your project are striking. The shortest possible line from Northern Europe to the St. Lawrence passes through the northern part of the Island of Newfoundland. Your line follows it. Many years ago, Sir Sandford Fleming, Canada's greatest engineer, made a report advocating the very route you have chosen. In those days, a train ferry was unknown. It was the one link missing which made the project impossible at that time. You have added it and made the scheme practicable and practical.

I earnestly hope that you may succeed in your patriotic project, destined, I trust, to unite Canada to the historic old island colony, of whose simple loyalty the Empire is so proud, by a bond of daily communication between the colonies, which will enable us to know and appreciate each other better, to our mutual advantage.

I look for the time when the success of your project will lead to like good results to the valuable sea fisheries of this Province; and perhaps, before many years, the widening of the gauge of the existing railway, from Bay of Islands to St. John's, will enable a daily train to run between St. John's and Montreal.

I am impelled to write you this letter because I know what it is to carry out a difficult project in the face of obstacles and prejudice, having built and operated successfully, during the last thirty years, five hundred miles of railway north and north-west of Quebec which were thought to be impossible owing to climatic conditions.

Yours very truly,

J. G. SCOTT.

[Mr. Scott was mainly instrumental in bringing about the construction of the Quebec & Lake St. John Railway, and for many years was its General Manager.]

Comparison of Distances.

But quite apart from any question of Imperial considerations of the nature indicated by Sir Sandford Fleming, there are many purely commercial grounds for the confident belief that the Newfoundland route is destined to become an important factor in the world's commerce. These reasons may be stated briefly as follows:—

Lying, as Green Bay does, upon practically the same parallel as both Plymouth and Winnipeg, it provides the shortest route between Great Britain and Canada. By the north of Scotland it also provides the shortest possible route from the Scandinavian countries, Norway, Sweden and Denmark, Russia and the whole of northern Europe—not merely to Canada, but through Montreal and Chicago to the Western and Southern States of America, as well as to Mexico; and through Mexico to the Pacific seaboard of Central and South America. A brief inspection of the globe will show that this is so.

Hamburg, by the north of Scotland (the route taken by the boats of the Scandinavia-America Line from Copenhagen to New York), is only 2,416 miles from Green Bay, as against 3,590 miles to New York by way of the English Channel; whilst from Green Bay to Gottenborg is 2,372 miles, and to Stavanger only 2,164 miles. The table of distances given below shows how immense the saving will be, and how it will diminish for ports further south (*in calculating the total distances six nautical miles are taken as being practically equivalent to seven miles*).

			MONTREAL Nautical Miles	CHICAGO Miles
Stavanger to New York (via North of Scotland)			3,661	5,152
Stavanger to Green Bay	do.	do.	2,164	4,316
Saving	...	...	1,497	836
Hamburg to New York (via English Channel)			3,598	5,180
Hamburg to Green Bay	do.	do.	2,419	4,775
Saving	...	...	1,079	402
Liverpool to New York	...	...	3,070	4,562
Liverpool to Green Bay	...	...	1,983	4,132
Saving	...	...	1,087	430

Follow it through on a globe, and it will be found that it is almost a direct line from the north of Scotland, through Green Bay, Montreal and Chicago, to Topolobampo Bay on the Gulf of California, and beyond that again to Mazatlan and Manzanillo, ports further down the Pacific Coast of Mexico, where connection can be made with all the important steamship lines trading in the South Pacific. Consequently, by the adoption of this route there would be an immense saving in the time taken by the German and Scandinavian mails to all South American Pacific ports.

FREEDOM FROM FOG OF PROPOSED ROUTE.

When the projected Short Line agreement came before the Newfoundland Legislature, in 1907, for ratification, great stress was laid upon the alleged freedom from fog of Notre Dame Bay by Sir Robert Bond, the then Premier, who relied chiefly in support of his statement upon the statistics given in the North Atlantic Meteorological Charts published by the United States Weather Bureau at Washington.

There was, however, a very general feeling of scepticism, both in Newfoundland and elsewhere, as to whether Notre Dame Bay really is any freer from fog than any other part of Newfoundland. It became consequently a matter of importance to ascertain exactly, as far as possible, what the facts regarding the occurrence of fog on that part of the coast actually are. The *Times*, commenting on the proposed route, on the 28th May, 1907, very plainly said: "Everything turns on the existence of the fog free zone, and both the British and the Canadian Governments may be trusted, in view of the strategic and commercial importance of the issues involved, to take the necessary steps to satisfy themselves of the validity of the claim advanced by the Newfoundland Government."

It is necessary, therefore, to deal in some detail with the evidence which has been obtained on the subject.

Mr. A. Harvey, of St. John's, whose firm operated the Coastal Mail Service for many years, kindly obtained the views of several of the best known Newfoundland Coastal Captains; all strongly corroborating the assertion which had been made.

Captain Delaney, of the S.S. *Bruce*, who has had great experience of the west coast, and on whose judgment much reliance is placed in Newfoundland, wrote as follows: "I may say that the coast between the points named (Cape Ray to Bonne Bay) is practically free from fog. During the time I was on the Coastal Service, extending over a period of thirteen years I never was detained by fog on that part of the coast."

Captain Taylor, of the S.S. *Home*, whose opinion also carried great weight, was equally explicit: "The statement about fog between Fogo and Hare Bay, strange as it seems, is quite correct. The same thing happens on the west coast between Cape Anguille and Point Rich. During the summer season, in the early morning, the top of the high lands about Cape John would be nearly always partially covered with haze, which disappears with the sun rising or a light wind coming."

Captain Hjalmar Bull, a Norwegian Captain, who has spent many years in Newfoundland, expressed his opinion even more strongly: "In reply to your enquiry about fog on the northern part of the east coast of Newfoundland, I have now been in command of S.S. *Cabot* belonging to your Company (The Cabot Whaling Co., Ltd.) for eight years, and have constantly patrolled the waters of Green Bay during some of the summer months in pursuit of the whale fishery, and my experience has been that from Quirpon south to Fogo there is a belt that is almost entirely free from fog. I have never seen fog on that belt, except when there was bad weather with easterly winds, and then it has prevailed for a very brief time, and I may say that this belt is practically free from fog."

Captain John Bartlett, whose letter has already been given, stated with regard to the fog: "In my many years experience on this coast I have crossed your proposed route many times at all seasons, and I have invariably found this track to be freer of fog than any other part of the east coast."

Moreover, the freedom from fog, both of the west coast and of the north-east coast, is commented upon by most of the older writers upon Newfoundland, as these extracts from their works will show:—

"The sky towards the northern and western parts of the island is generally clear and serene, whilst the eastern and southern parts, on the shore and in soundings, are more subject to rains and fogs on account of their proximity to the Banks."

ANSPACH, 1819.

"The southern shore is frequently enveloped in fog, and the eastern although not subject to that visitation to an equal extent, as the banks of fog more generally keep at some distance from it, yet does an easterly wind almost always bring to the eastern shore cold and disagreeable weather. **On the western shore fog is rarely seen.**"

Surveyor General's Report, 1847.

"In Bonavista Bay, and along the northern shore of Newfoundland, there is comparatively little fog, the only wind that brings it being a north-easterly or a very strong easterly wind."

J. B. JUKES.

[Professor Jukes, afterwards so eminent as a geologist, was for some time in charge of the Newfoundland Geological Survey.]

"North of Cape Bonavista fogs are of very rare occurrence."

ALEX. MURRAY,

Geological Survey of Newfoundland, 1877.

"The summers are warm, and a fog hangs on the eastern and southern coast for months; as it does also on the coasts of Nova Scotia and New Brunswick; **but to the north of Bonavista Bay and to the west of Cape Ray fog is rarely seen.**"

REV. M. WILSON,

"Newfoundland and its Missionaries," 1866.

"Fogs are confined to the south-eastern shore, the **northern and western shores being almost entirely free from them.**"

REV. M. HARVEY,

"This Newfoundland of Ours."

"The summer here is remarkable for fog, on the southern and south-eastern coast especially; not on the northern or eastern side."

THE RIGHT REV. DR. MULLICK,

"Two Lectures on Newfoundland."

These are all interesting and important confirmatory statements; but the first detailed statistical information obtained was from Captain Combe, R.N., who was in charge of the Admiralty Surveying vessel *Ellinor*. He very kindly had extracts taken from the log book of the *Ellinor*, when operating in Notre Dame Bay, which form exceedingly valuable evidence. They show that in the year 1908, from August 24th to September 29th, only four hours of fog was met on one day, August 31st; and that in 1909, from September 1st to October 14th, fog only occurred on three days, on September 30th, October 12th, and October 14th.

Captain Combe also furnished extracts from the log books of previous Admiralty Surveys, relating to Notre Dame Bay. They show a similarly small percentage of fog.

In 1878 from August 31st to October 11th (42 days). No fog.

In 1879 from May 31st to September 30th (123 days). Eight days with a few hours each of fog.

In 1880 from August 31st to October 1st (32 days). No fog.

The Survey boat was again, off and on, in Notre Dame Bay from 1900—1905, and again there were few records of fog.

In 1900 from July 12th to October 1st (82 days). Fog on two days, on 20th July and 27th August; on both occasions at night.

In 1901 from June 24th to October 3rd (102 days). Fog only once, on October 3rd for four hours.

In 1902 from June 20th to October 3rd (106 days). Four days fog.

In 1903 from September 11th to October 10th (30 days). Two days fog.

In 1904 from June 27th to October 10th (106 days). No fog.

In 1905 from June 24th to October 13th (112 days). Three days fog.

Not only were there few days on which there was fog, but it will be noticed that frequently the fog lasted only for a few hours.

In July 1907, the Meteorological Office in London, which had been asked for information on the subject, prepared a chart showing the percentage of fog and mist frequency over an area embraced by the 45th and 55th parallels of north latitude, and the 50th and 60th meridian of west longitude during the fifteen year period 1892—1906.

The information available was scanty; but, although the observations recorded were few, the figures on the whole tended to confirm the conclusions already arrived at.

The chart includes the fog returns taken from the Shipping Diaries kept at Tilt Cove in Notre Dame Bay, from 1905—1907, which show that out of 305 (day) observations there was only four per cent. of fog and one per cent. of mist, as against 150 observations noted in the same chart as recorded off St. John's, with 31 per cent. of fog and 17 per cent. of mist; being a total of 48 per cent. for fog and mist together; rather a striking contrast to the total of five per cent. for fog and mist together recorded at Tilt Cove.

The U.S. Weather Bureau, upon whose charts, as already mentioned, Sir Robert Bond had mainly relied, like the British Meteorological Office, found that their records were too meagre to admit of any safe broad generalizations; although such data as they had led strongly to the conclusions above stated. They asked Mr. Thomson therefore, if he could obtain for them, if possible, complete and accurate data from the Newfoundland Lighthouse records for the ten year period 1900—1910 inclusive; and they supplied him with forms to be filled up so that the information given should be in such a shape as could be conveniently used. Mr. R. White, the Inspector of Lighthouses in Newfoundland, by the direction of the Premier, Sir E. P. Morris, had these forms filled in with the details required, and sent to Washington, where they were carefully examined.

The results were published recently, on the back of the North Atlantic Chart for April of the present year, with a sketch map of Newfoundland, showing the location of the different lighthouses from which records were obtained, together with the following observations: (*See copy of the Chart.*)

"The information published on the face of the Meteorological Chart of the North Atlantic Coast relative to fog shows by lines and shading the percentage of days with fog for that portion of the ocean for which data have been reported in the weather reports received regularly from mariners who co-operate with the Weather Bureau."

"The present percentages cover the six year period 1901—1906. A revision of these percentages to include the twelve year period 1901—1912 will be made as soon as practicable."

"In view of the scarcity of fog data for the higher latitudes, and the importance of presenting all information on the subject, the Bureau is prepared to publish any trustworthy statistical data received."

"Mr. R. White, Inspector of Lighthouses, St. John's, Newfoundland, through Mr. H. C. Thomson, has placed at the disposal of the Weather Bureau the fog records of several Newfoundland Lighthouses."

"The percentages of days with fog obtained by these reports were computed by the Weather Bureau. In considering these percentages it is to be remembered that they are not closely comparable with percentages obtained from observations made at sea as the conditions tending to the formation of fog are different over the land from those over the sea."

PERCENTAGE OF DAYS WITH FOG AT LIGHTHOUSES ON THE NEWFOUNDLAND COAST.

Computed by the United States Weather Bureau.

NORTH-EAST COAST.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
NOTRE DAME BAY—													
Gull Island (years 1900-11 inc.)	...	3	10	10	16	21	27	23	16	10	10	14	8
Nipper's Harbour (years 1902-11 inc.)	1	2	3	7	11	9	8	6	3	9	11	5	
Long Island (years 1904-11 inc.)	...	1	4	2	5	10	10	4	4	6	4	8	7
Long Point (years 1900-11 inc.)	...	2	8	9	11	15	15	11	5	6	4	5	8

EAST COAST, CENTRAL PORTION.

CATALINA HARBOUR—

Green Island (years 1900-11 inc., except 1907—No data)	{	6	6	7	11	11	14	22	11	8	7	12	5
--	---	---	---	---	----	----	----	----	----	---	---	----	---

EAST COAST, SOUTHERN PORTION.

CONCEPTION BAY—

Cape St. Francis (years 1900-11 inc.)	6	12	10	17	19	19	19	11	9	10	13	10
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NEAR CAPE SPEAR—

St. John's Harbour (years 1900-11 inc., except 1908—No data)	{	19	14	14	27	27	34	34	24	17	20	18	14
--	---	----	----	----	----	----	----	----	----	----	----	----	----

SOUTH COAST, NEAR EXTREME EASTERN PORTION.

TREPASSEY BAY—

Powell's Head (years 1903-7 inc.)	.	6	4	4	15	13	16	32	12	1	6	8	6
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SOUTH COAST, EXTREME WEST PORTION.

CHANNEL HEAD (years 1900-7 inc.)	.	5	3	4	15	13	16	31	17	11	8	2	4
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BAY ST. GEORGE—

Sandy Point (years 1900-10 inc., except 1909—No data)	{	0	0	0	1	1	2	2	2	1	1	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---

BAY OF ISLANDS—

Frenchman Head (years 1902-10 inc., except 1909—No data)	{	0	0	1	5	14	11	11	6	5	5	3	1
--	---	---	---	---	---	----	----	----	---	---	---	---	---

BONNE BAY—

Lobster Cove Head (years 1900-10 inc.)	o	o	1	3	5	7	14	6	2	3	1	1
--	---	---	---	---	---	---	----	---	---	---	---	---

KEPPEL HARBOUR (years 1901-10 inc.)	o	o	o	1	4	5	13	6	2	2	1	1
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"The foregoing table of reports from the lighthouses on the coast of Newfoundland are mostly for the twelve year period, 1900-1911 inclusive; north of St. John's the percentage of fog decreases markedly; in Notre Dame Bay it is lower than at the entrance, between Gull Island on the north and Long Point on the south; at St. John's, and the south-eastern part of the coast, it is highest; it is comparatively low on the west coast."

It will be seen that this tabulated statement shows that though there is a considerable amount of fog both at Gull Island and at Long Point, the entering points of Notre Dame Bay, there is but little inside the bay itself.

This is due to the fact to which attention has already been called, that when the fog is carried up from the Banks by a south-east wind some of it is blown across the mouth of the Bay, but the greater part is dispersed by the land over which it has to come, so that although there may be a certain amount of fog outside the Bay, the Bay itself is clear.

The fog at Gull Island would seem from these statistics to be a good deal more frequent than at Green Island, almost as frequent indeed as at Cape Spear, but further

inquiry will probably elicit the fact that, although it is noted as occurring on a great many days, yet it is not thick fog as at Cape Spear, and that it only lasts for a few hours each day. And even though there be fog, yet the Bay being a wide bay, twenty-four miles across at its mouth, with great depth of water, there is never any difficulty or danger in entering it.

Mr. Alan Goodridge, the Deputy Minister of Fisheries in Newfoundland, who has an intimate knowledge of Notre Dame Bay, writes with regard to the fog at Gull Island:—

“ Fog is more in evidence at Gull Island, chiefly I should think, on account of the Arctic current which meets the island, and is deflected across the Bay in the direction of Fogo. Fog is often present at the island when the whole Bay is clear.”

“ Notre Dame Bay, as you know is indented by large fiords, and is bounded by high land. This makes for land winds, which, as the fishermen say, eat up the fog. The current also of the Great Exploits River creates a local and prevailing wind which has a tendency to push the fog away out of the Bay.”

It is quite possible indeed that the fog at Gull Island may be partly due to the meeting of this current with the Arctic current.

The entries in the log of the *Ellinor* show that, whatever the reason may be, the fog in Notre Dame Bay lasts only for a short time, whereas further south it is much thicker, and often lasts for several days together.

The diminishing density of the fog from St. John’s northwards is clearly shown by a statistical table taken from various fog alarm stations which Mr. White has also had prepared. (*See tabulated statement*).

In the year 1903, for instance—a particularly foggy year—the hours of fog recorded were as follows:—At Cape Race, 2,115 hours. At Cape Spear, 1,657 hours. At Green Island, Bonavista (Catalina), 928 hours.

In 1905, which was a clear year, there were recorded at Cape Race 1,951 hours, at Cape Spear, 1,298 hours, and at Green Island, 483 hours of fog respectively.

It will be seen that the proportions of fog, noted by the Weather Bureau in the table already given, for the month of May, are as follows:—

Gull Island, 21 per cent., Nipper’s Harbour, 11 per cent., Cape Spear, 27 per cent. But their chart shows that the fog on the Grand Banks is very much greater even than at Cape Spear; the charts for May and June of the present year (1913), show that the percentage of fog in the five years, 1901–1906, was from 60 to 65 per cent.

North of Green Island, Bonavista, there is so little fog, comparatively speaking, and it is so much less thick that there are no more fog alarm stations, only lighthouses; a fact which speaks for itself.

It will be noted that the figures in the United States Chart show that on the West Coast fog is very rare, and that the statements made by Captain Delaney and Captain Taylor are borne out in the fullest possible way by the recorded observations.

There is more fog at Bonne Bay (Lobster Cove) and at the Bay of Islands (Frenchmen’s Head) than either at Keppel Island or at Sandy Point, St. George’s Bay, where there is virtually no fog at all.

The land around both Bonne Bay and the Bay of Islands is high, rising to altitudes of over 2,000 feet, whilst at Keppel Island and at Sandy Point there are stretches of low land with the hills at some distance away. This is, probably, the reason of the difference; the fog at Bonne Bay and the Bay of Islands being more in the nature of a mountain mist.

The evidence adduced may be held to prove, fairly conclusively, that both Notre Dame Bay and the Bay of Islands are exceptionally free from fog; and now that attention has been called to the subject it is hoped that still fuller information will be forthcoming.

TRAIN FERRIES.

The Question of Transhipment.

When the proposal for the establishment of a Trans-Atlantic route by way of Newfoundland was first raised in the Seventies of last century the objection was raised that the necessity of transhipment would prove an insuperable obstacle to the commercial success of the Newfoundland route, and to its ever being used for freight. There is, however, reason to believe that this route will provide, by the adoption of modern appliances, the quickest and best route for rapid freight and express goods, as well as for mails, and that it may be of great service as a grain route—a question which is separately dealt with.

It is true that the old objection has been again raised now. Indeed, it is mainly upon this ground that the exclusion both of Ireland and of Newfoundland from the *All-Red Route* has been urged by those who desire that line to proceed directly from an English to a Canadian port.

But the objection has no longer any force. It may, indeed, be observed that so far as passengers are concerned, transhipments have never seriously interfered with the successful working of a mail route if the gain in time and regularity of service be commensurate. They have never interfered with the mail route *via* Brindisi to India and the East, although that involves three transhipments—at Dover, Brindisi and Alexandria. In all probability most passengers would look forward with pleasure to the crossing of Newfoundland by train as a pleasant relief to the monotony of the Atlantic voyage. Most certainly the majority of them would welcome it as a means of escape from the fog zone through which they would otherwise have to pass.

The objection to transhipment is naturally a stronger one with regard to freight; the necessity of breaking bulk, and the cost of re-handling, being a very serious matter.

Train Ferries.

But the transhipment difficulty no longer bars the way to the adoption of the Newfoundland route. Practically the whole of the objections resulting from transhipment can be removed by making use of train ferries such as have been successfully worked for many years in various parts of the world, more particularly in America. They are in constant use on the Baltic, between Germany and Denmark, and between Germany and Sweden, upon Lake Baikal, in the Straits of Messina, and on more than eighty different routes in and around the United States.

The practicability of the train ferry, as a means of establishing communication over long distances is no longer a matter of speculation. It is, indeed, now recognised that the train ferry is destined to play a much more important part in the solution of the various transport problems with which the world is faced, than was conceived possible on its first introduction.

Sir Charles Rivers-Wilson in a letter published some little time ago, urging their establishment on the English Channel, showed how great an advantage has been found to accrue from their use.

"My own experience," he wrote, "is principally with America, and more particularly with Canada, and I can speak with confidence as to the enormous advantages obtained by a system which is now worked all over the Continent of North America as an important element in railway transportation. The Grand Trunk Railway of Canada, with which I am connected, runs a great ferry boat across Lake Michigan, a distance of eighty-five miles. The boat has four rail tracks and a capacity of thirty cars, with a speed of seventeen miles. The service has been so satisfactory that a second boat will shortly be added. I may say that in certain seasons of the year weather as

tempestuous and waves as formidable as any on the English Channel are encountered on Lake Michigan. We have also, quite as a matter of ordinary business, established a similar service of two big ferry boats across the widest part of Lake Ontario."

There was recently an interesting reference to these train ferries in the *Financial Times* in relation to the proposed train ferry across the Irish Channel.

"There are four train ferries on that lake (Lake Michigan), the shortest being 60 miles and the longest 90 miles. These ferries, during the year 1909 carried 27,240 cars, with goods amounting to 415,600 tons, and reliable statistics show the velocity of the wind and the height of the waves to be considerably greater than any to be found crossing the Irish Channel, and it is also an admitted fact that large lakes, such as Michigan, are of a more treacherous and difficult nature to navigate than the Atlantic Ocean."

(*"Galway as a Trans-Atlantic Port," Financial Times, 16th February, 1912.*)

Some further details about the Lake Ontario ferries are enabled to be given through the kindness of the Grand Trunk Railway Company. These ferries run from Cobourg, Ontario, to Charlotte, N.Y., and are twin-screw boats, with triple expansion engines, used chiefly for carrying coal. They are 316-ft. long, with a 54-ft. beam, and the cars are 31-ft. in length, and 10-ft. in width. Each ferry has a carrying capacity of 28 loaded cars, on a loaded draught of 15-ft., but as a rule it takes only 26 cars with a capacity of 102,000 lbs. per car, equalling a total load of 1,334 short tons. These figures show how completely the problem has been mastered of the transportation of heavy freight by boat without re-handling.

Quite as interesting are the following particulars, for which, together with the photograph of one of their boats, acknowledgment must be made to the courtesy of the Père Marquette Steamship Company. That Company operates six steel car ferries of 30-car capacity each, giving a constant moving capacity of 180 standard freight cars, so scheduled as to permit transit of 500 cars per day, 15,000 cars per month, and 180,000 cars per year. These boats make uninterrupted trips every day in the year, the most serious conditions of navigation presenting no obstacle which they do not successfully overcome. Year by year the fleet has grown until now it comprises six steel ferries, aggregating two million dollars in value.

What has been done on the Great Lakes could be done quite as easily and efficiently on the St. Lawrence, if it were deemed worth while, not merely as an accessory to a fast route, but for the ordinary handling of merchandise.

Gulf of St. Lawrence a sheltered sea. Distance no Difficulty.

It may be said that the distance from Bay of Islands to Gaspé—257 miles—is too great for safety, but the Lake Michigan Car Ferry Transportation Company (of whose kindness acknowledgment must also be made, for the use of the map showing their car ferry system), have for years run a freight ferry for very nearly that distance, 240 miles, right up the centre of Lake Michigan, and have never had a single mishap, although the gales on Lake Michigan are worse than those met with on the Gulf of St. Lawrence, which, on the whole, is singularly exempt from violent weather. All the Canadian Steamship Companies concur in laying stress upon this.

"The last two days of the voyage are passed on the placid waters of the St. Lawrence."—*Canadian Pacific Railway*.

"The remainder of the journey from the Newfoundland Coast, occupying about two days and a half, is made on the comparatively smooth waters of the Gulf and River."—*Allan Line*.

"For about nine hundred miles the waters are landlocked, and the sailing smooth. . . . This sail through the quiet waters of the St. Lawrence is a feature of the voyage which most people appreciate, and is perhaps the supreme advantage from the standpoint of comfort which the St. Lawrence route possesses above all others."—*Donaldson Line*.

"The voyage extends over a thousand miles through the placid waters of the Lower St. Lawrence and Gulf."—*Quebec Steamship Company*.

(For further details with regard to the weather in the Gulf of St. Lawrence and for photographs of train ferries see pamphlet "*Newfoundland Trans-Atlantic Route.*")

Train Ferries regular Sea-going Boats.

Even if the Gulf were stormier than it is, train ferries could be operated without risk, for they are now so constructed as to be able to encounter any weather, however rough. They are in fact regular sea-going ships, and in several countries are used on the open sea quite as successfully as they are on the Great Lakes of America. They are in use, as already mentioned, on the Baltic, and in the Straits of Messina, and they are very shortly to be put into operation on the hurricane-swept stretch of sea which lies between Key West and Havana.

"As the distance from Key West to Havana is but ninety miles, the transportation of freight cars is entirely practicable, and the trip can be made in about six hours."—*Florida East Coast Railway*.

The following details have been published about the ferry boat, running between Sassnitz, in Germany, and Trelleborg, in Sweden, a distance of 68 nautical miles. It has been designed both for safety and for steadiness, with large bilge keels and trimming tanks, and an arrangement of ring plates and screws, to screw the cars firmly to the deck, and spring buffers to prevent them from moving endways. Besides carrying the train, the boat is provided with cabins, and is fitted with a bow as well as a stern rudder to enable her to enter and leave port more easily. She is a twin-screw boat, with triple expansion engines, and with a speed of sixteen knots; 370 feet in length with a 51 feet beam, and a draught of 16 feet 4 inches. Her safety is assured by water-tight compartments and Stone-Lloyd bulkhead doors.

The Sassnitz—Trelleborg ferry started running in June 1909, and its success may be judged from the following figures, published by the Swedish Chamber of Commerce in London.

SWEDISH TRAIN FERRY TRAFFICS.

TRAFFIC.	Ordinary Steamer six months prior to Train Ferry	Train Ferry Service six months after adoption	Increase by adoption of latter.
Passengers	9,640	34,248	255 %
Goods 	2,600 Tons	35,100 Tons	1,250 %

A similar increase both of passengers and of freight between Canada and Newfoundland may confidently be anticipated if a train-ferry service were established across the Gulf of St. Lawrence.

Sufficiency of Freight.

The question has been raised whether there will be a supply of freight sufficient to make such a route profitable. But there can be little doubt that, if the route should be found to be the quickest, safest and most convenient, as it is confidently believed will be the case, there will be more than a sufficient amount of rapid express and other freight to keep both the Atlantic boats and the car-ferries constantly full. The difficulty will arise, not from the lack of freight, but from the want of means to handle it expeditiously. It would not be possible to do so at all, were it not that the car-ferries will connect through Gaspé with a network of Canadian and American railway lines; and that as the necessity arises the number of boats can be increased, as has been done with the Père Marquette boats; besides which, in course of time, other boats will no doubt be put on;

from Dalhousie, from Chatham, from Prince Edward Island, from the Saguenay, from Bay of Seven Islands, and from other points on the Canadian coast, just as they have been from various ports on Lake Michigan.

"It is well known now, that transportation by water on a first-class shipway is not only cheaper than by rail but often much quicker. It is recognized in the United States that the average movement of freight by rail is only 25 miles per day, or about one mile per hour, including of course, all delays at stations and at terminals, where cars are frequently sidetracked for several days. Anyone conversant in the movement of freight on the Great Lakes can see that the average there is considerably above this figure."—(*Georgian Bay Ship Canal. Report on Survey for 1908. Published by Dept. of Public Works, Canada.*)

With a properly organised system of train ferries the movement of freight would be very much quicker and more regular than this movement by rail.

Commercial Practicability of the Gaspé Train Ferry.

The following is the carefully considered opinion of Mr. J. N. Faithorn, one of the pioneers of train-ferrying in America, dated 28th of June, 1910:—

"Based on my experience of some fifteen years, with a car ferry line between South Chicago, Illinois, and Peshtigo, Wisconsin, a distance also of 240 miles, during which time the line has been operated without any mishap on the open lake, and this too under a system of towing barges with cars thereupon, instead of the cars being placed upon the steamer, I feel at liberty to state that, in my judgment, such a car ferry line as proposed between Bonne Bay (*now Bay of Islands*) and Gaspé would be entirely feasible, and should present no difficulties of any serious character, in fact, not as great as the difficulties that exist on Lake Michigan.

"As compared with the ocean steamer wending its way through the Straits of Belle Isle and the Gulf of St. Lawrence to the cities of Quebec and Montreal, the plan of discharging the vessel at Green Bay, and the moving of the freight by rail and car ferries to the mainland of North America, is, in my opinion, vastly superior, and this, of course, would apply to the movement of freight in the other direction, and while I recognise that the route you are advocating would be revolutionary in character, I firmly believe, based upon the information contained in the documents referred to, that it would prove to be entirely feasible and superior to the arrangements now prevailing. There is nothing inherent with respect to car-ferries, so-called, as to stability, seaworthiness, navigation, &c., in any way differing from other ocean-going boats. The only difference is that when freight is loaded in railroad cars, and the cars placed in and on the vessel, the tonnage of paying freight is necessarily reduced as compared with the volume of bulk freight that could be loaded in a vessel of like tonnage. *The length of the route is in favour of the car-ferry transportation v. railroad transportation on land, as the capital investment is confined to the car-ferry and its landings.*"

"Freight transferred from steamer to railroad car at Newfoundland, can, by the use of car-ferries, be taken from Newfoundland to its ultimate destination without handling *en route*. This feature is specially important with respect to fresh fish which cannot be handled efficiently otherwise, and this commodity I understand will probably be a considerable factor in your proposed business. As I understand the plan of transportation contemplated, the establishment of car-ferrying arrangements would admit of the movement of Trans-Atlantic freight and local Newfoundland traffic (notably fresh fish and pulp) conjointly, and the advantages flowing therefrom should much more than counterbalance any saving from the movement of Trans-Atlantic freight direct to mainland ports *via* ocean steamer. As the fresh fish traffic would involve the use of refrigerator cars, such equipment could be loaded easterly with Trans-Atlantic chilled meat, fruits, &c."

Cost of Operation.

One question remains still to be considered: the cost of operation of a train ferry. This extract from a letter, kindly written by the Père Marquette Company in response to an enquiry, shows that it is less than that of operating a train service on land: "Relative

to cost of operation, we figure that it costs us \$7.00 per loaded car for transporting ninety-six miles, including cost of handling on and off the ship. The empty cars that are handled are not considered. This cost is figured somewhat cheaper than all-rail business."

That is to say, the putting on of a train ferry for 257 miles (the distance from Bay of Islands to Gaspé) is equivalent to constructing a railroad of that length but for a cost of less than £100,000, instead of at a cost of upwards of £1,500,000 if built on land; a railroad which when built can be operated at a smaller cost than if it were an ordinary railroad on land, and on which, moreover, there will not be the same heavy charges for upkeep and for interest on capital expenditure.

The *World's Work* mentions that a twenty-knot ferry boat suitable for the requirements of the English Channel traffic could be built for £125,000. But the boat which would seem to be best adapted to the requirements of the Canada-Newfoundland service would be one similar to the *Milwaukee*, of which the *World's Work* gives this description—

"The Grand Trunk ferries which now ply between Grand Haven and Milwaukee, are the finest and biggest train-carriers on the American continent. Their representatives are the *Milwaukee* and *Grand Haven*, sister ships virtually, although the first-named is not quite so fleet, being of sixteen miles per hour, whereas her consort can turn out a steady twenty miles in the same time. Both are built of steel, and although the *Milwaukee* takes second place in point of speed she leads in size. She has a length of 350 feet and a breadth of 56 feet, while loaded she draws 11½ feet of water. Her engines can turn out a steady 3,000 horse-power, as compared with 4,000 horse-power in her fleeter sister. She has a good carrying capacity, as the tracks on her cavern-like deck will receive thirty loaded freight-cars, each turning sixty tons apiece—a matter of 1,800 tons all stowed and packed ready to go to the uttermost limits of the country."

"But this is not all. Passengers, when their coaches are run on a ferry steamer, do not want to be condemned necessarily to their cramped quarters. They desire to roam about, or seek other more spacious apartments and decks where they can stretch their limbs and while away the time in music or other recreation. This car ferry meets their requirements. She has thirty state-rooms and can carry ninety first-class and sixty second-class passengers in comfort. The excursionist traffic must also be remembered and in this respect the vessel meets all demands, because she can carry no fewer than 3,000 merry-makers."

"The sister ship *Grand Haven* is registered to carry 250 passengers of both classes. These ships were expensive, the first-named representing an outlay of £100,000, while her consort cost £80,000. This conveys some idea of the lengths to which the American and Canadian railway companies will go to meet commercial exigencies and public convenience."

A Floating Coal Yard.

"Another fine car-ferry service is that across Lake Ontario, between the Grand Trunk station Coburg on the Canadian, and Rochester on the American shore. The distance is fifty-six miles and the journey is covered in about 3½ hours. The vessel is built of steel, sub-divided into water-tight compartments, and driven by twin-screws giving a speed of seventeen knots per hour. While freight is her main mission she also handles a considerable number of passengers, especially during the summer, when the excursion season is in full swing, there being accommodation for 1,000 trippers. But coal is the principal commodity carried. The Grand Trunk Railway acquires its supplies of fuel from Pennsylvania. The ferry offers a short cut in its transportation. The car deck has four tracks, on which thirty cars, each containing fifty tons may be shunted, representing a total load of 1,500 tons. This route avoids the longer and more circuitous journey around the head of the lake and across Niagara's gorge. By ferrying across the lake about 140 miles are saved."

"The means adopted to bring the landing stern of the steamer and her deck tracks dead in line with the metals on the bank are novel. A massive fence of piles is

erected to the shape of the ship, forming a dock just large enough to receive the vessel and no more. The vessel backs into the enclosure slowly, and bumping against the piles is guided to the exact position, and with the two sets of tracks dead in line. A short bridge or gangway serves as the link between ship and shore, this being like a flap to accommodate the levels of the boat and bank, according to the condition of the water."

World's Work, December, 1912.

A boat such as this would do the passage between Bay of Islands and Gaspé in about sixteen hours. If, however, Newfoundland were included in the *All-Red Route* it would probably be found advisable to put on a quick 25-knot boat for passengers and mails alone (in addition to the train ferry for freight) such as the *Ben-my-Chree* now running between Liverpool and the Isle of Man. She is a 26-knot boat of 2,651 tons, with 14,000 horse-power, and is arranged to carry 2,550 passengers. A boat such as this would do the passage between Bay of Islands and Gaspé in ten hours.

Small Rise and Fall of Tide in the Gulf of St. Lawrence.

One great obstacle in the way of establishing train ferries across the English Channel is practically absent in the Gulf of St. Lawrence. It is that caused by the difference in sea-level between high and low tides. With regard to this, Sir Charles Rivers-Wilson, in the letter above referred to, wrote as follows:—

"A favourite criticism is that the rise and fall of the tide in the English Channel differentiates the case from those mentioned, but apart from the fact that the difficulty has been entirely met and overcome by the eminent experts who are advising the Channel Ferries Company, an almost exact parallel is to be found in the case of the railway ferry recently established across the Mississippi at New Orleans, where the fluctuations of the level due to the freshets—some 23 feet, I believe—are almost exactly the same as in the Channel."

In the Gulf of St. Lawrence the rise and fall of the tide is so small that it will cause no difficulty whatever.

"It is high water, full and change, in Gaspé Basin at 2 h. 40 m.; springs rise 5 feet, neaps 3 feet; extraordinary springs rise 7 feet."—*St. Lawrence Pilot*, 7th Edit., page 90.

Bay of Islands. "It is high water, full and change, in Birchy Cove, at 10 h. 26 m.; springs rise 5 feet, neaps 3½ feet."—*Newfoundland Pilot*, 4th Edit., 1907, page 534.

Larger Boats Possible, and Drawing More Water.

It would probably be found both possible and desirable to have larger ferry-boats than those previously described—to carry cars in the hold as well as on deck. This could be done by means of hydraulic lifts. It would give additional stability to the boats, as well as enabling them to carry more freight: instead of 30 cars they could take 50; equivalent to a load of 3,000 tons instead of 1,800 tons; so that they would carry almost as much as an ordinary steamer. This is a new and hitherto untried feature in train ferries, but the opinion, both of marine architects and of ship builders has been obtained, that it is not only perfectly feasible, but that it would make the train ferries more sea-worthy.

One point must not be overlooked; that the ferry-boats on the Great Lakes are limited in size, and have to be made to draw very little water, because the harbours on those lakes are small and shallow. The *Milwaukee*, for instance, only draws 11 feet. This tends to make the boats top-heavy. Both Bay of Islands and Gaspé are large harbours, with ample room and great depth of water, and the ferry-boats for the proposed service might be made much larger and to draw more water than those in use on the Great Lakes, so that a greater amount of freight could be carried, and at a proportionately

less cost than by building, and having to operate additional ferry-boats. They could be built on this side of the Atlantic at considerably less cost than if built in America, as the boats on the Great Lakes are, which are obliged to be built upon one or other of those lakes.

The question of train ferries has been gone into in considerable detail, because it is one on which the commercial feasibility of the whole enterprise may be said to depend.

FEASIBILITY OF WINTER NAVIGATION OF THE RIVER AND GULF OF ST. LAWRENCE.

The opinion is strongly held in Quebec that those portions of both the River and Gulf of St. Lawrence, which would be traversed by the train ferries, are capable of being navigated safely all through the winter with properly constructed steamers. The following letters set forth the grounds for that opinion :—

EXTRACT FROM LETTER FROM M. LE VASSEUR, SECRETARY TO THE
QUEBEC BOARD OF TRADE, TO THE HON. L. P. PELLETIER, POSTMASTER-GENERAL
AND REPRESENTATIVE OF THE DISTRICT OF QUEBEC IN THE FEDERAL GOVERNMENT,
dated 20th January, 1912.

"As this project would be of very great importance to Canada, not only for a faster English mail service, but also as making a daily and more intimate connection between this Province and Newfoundland, the Council of the Quebec Board of Trade would respectfully suggest that so as to prove the perfect practicability of this route in winter, as has been affirmed by our most experienced navigators—the Government steamship *Montcalm* on her next trip to the Gulf in the month of February should make a run from Gaspé to Bay of Islands."

"The transfer of entire trains in winter across Lake Michigan and across Lake Baikal in Siberia, has proved perfectly successful under much more difficult circumstances than exist in the Gulf of St. Lawrence, so we feel confident that the Government will not hesitate to make a trial likely to be productive of such beneficial results."

LETTER FROM CAPT. COUILLARD & CAPT. PAUL LACHANCE,
dated 7th October, 1911.

"In answer to your inquiry we would state we have been called upon to navigate the River and Gulf of St. Lawrence as Masters during sixteen years in the very latest fall and very early spring, and that from our experience we consider that navigation is possible in winter-time from the Bay of Islands, through the Gulf, to Father Point, Que."

"The ice is very easy to contend with until the latter end of February and March when ice coming out of the northern bays may be larger in quantity. We never saw or heard of icebergs or Arctic ice being seen in the Gulf. With modern ice-boats we consider there is all possibility of running a line between Bay of Islands and Father Point, as the best place of all for landing, as the access is easier than anywhere else either in snowstorm or foggy weather, the wharf being unusually clear of ice in winter, the soundings being so very reliable, and the river being so wide at this point."

This is confirmed by the *St. Lawrence Pilot*:—"The river never freezes over at Father Point . . . a channel of water always remains open, either on the north or the south side of the river, according to the prevailing wind, even a light air being sufficient to drive the ice to mid-channel. (*St. Lawrence Pilot, 7th Ed., 1906, page 101*).

EXTRACT OF LETTER FROM MR. J. A. FAFARD, dated 30th December, 1911.

"In fact, I acknowledge that a steamer properly built for ice can properly navigate during the winter; as it is a fact known to all that during the winter three quarters of the wind comes from the north, and this has for effect that the ice goes southward. A railroad is now in construction on the north shore, and is projected to go as far as Seven Islands, which is one of the nicest sea ports for summer and winter in the Gulf of St. Lawrence. In my humble opinion I believe that navigation all the year round between Seven Islands and Bay of Islands will be most practicable, by the way of North of Anticosti Island. The advantages are too numerous to mention connected with such a scheme, including the great development of the lower part of the Gulf of St. Lawrence, which is so rich in every respect." [*Mr. Fafard has been in the Government service for 37 years at Pointe des Monts, the gateway of the St. Lawrence, and understands the movement of the ice thoroughly.*]

EXTRACT OF LETTER FROM CAPTAIN BERNIER, dated 29th December, 1911.

"With regard to the Gulf of St. Lawrence, specially during the winter, a properly built vessel could navigate and ferry all the cars from Bay of Islands to Gaspé as well as she could on the Great Lakes, being properly secured for such service. By keeping South of Anticosti going and coming she would encounter less ice than a straight line across, though she would make a greater circle going and coming. But I may mention here that the best Port in the Gulf of St. Lawrence for a winter Port is Seven Islands Harbour, and the best route to seaward is to the North of Anticosti Island."

[*Captain Bernier has made three very successful voyages to Hudson Bay and the Arctic Ocean. He understands winter and ice navigation thoroughly, and knows the St. Lawrence at all seasons of the year.*]

See also letter from Mr. J. G. Scott, on page 20.

The following extract from a recent issue of a Canadian newspaper may also be quoted:—

"Winter navigation of the St. Lawrence is no longer an unsolved problem. Its feasibility is now established without question, and the only thing left is the organisation of a special winter line of steamers to put it into practice as a commercial enterprise."

"Mr. Galvin Moir, for many years in the employ of the well-known Quebec Mercantile firm of Ross & Co., speaking on the subject of winter navigation, said its adoption would be a great commercial benefit to the port of Quebec. He said the merchants of Quebec and Montreal in former days carried on a very large trade with Newfoundland, that has since been lost for the want of a regular line of steamers from this port to the island of Newfoundland."

"Mr. Moir, in corroboration of his statement, invited a *Chronicle* reporter into his office and there produced a number of old steamer manifests, by which he demonstrated the large trade carried on between Quebec and Newfoundland in former years."

Big Trade Disappears.

"These manifests, showed the large and valuable miscellaneous cargoes shipped to Newfoundland, comprising flour, oatmeal, pork, salt meat, felt, building material, in fact every conceivable merchandise needed to support the island population. All this trade has been lost to Quebec to the gain of the New York Market, upon which the people of Newfoundland are now obliged to depend for their supplies because there is no regular line of steamships running from Quebec to Newfoundland to handle the trade."

"True," said Mr. Moir, "the Montreal merchants still continue to make shipments of merchandise in the summer season by the Black Diamond Line, but the greater part of the business is done at New York. He further said that two steamers could be loaded per week from Quebec for the island, and should a winter service be inaugurated and the trade of Quebec seek to get back what has been lost, two steamers a week could be loaded down for Newfoundland during the winter season, as the islanders had to import all their provisions and building material from abroad, and had wood, fish and oil to give in return trade."

Quebec Chronicle,

17th March, 1913.

IMPORTANCE AS A GRAIN ROUTE.

One special advantage of the Green Bay Route consists not so much in saving of time, appreciable though that is, as in its strategic value; in affording a safe and continuous outlet for Canadian grain by a route which in time of war, both by land and sea, would be greatly less exposed to attack than any of the existing routes. It would be of more value in war time than many ironclads. It must not be lost sight of that the route to the East by the Suez Canal is an exceedingly vulnerable one, and that it would be well to have the Canadian Route to fall back upon, and to render it as expeditious, and as protected as possible.

The extra freight entailed by the longer railway haul would be compensated for by the smaller rates of insurance, which are exceptionally high owing to the dangerous navigation of the St. Lawrence.

Passenger traffic invariably seeks the shortest route. As regards freight, it used to be held as an incontrovertible axiom that transportation by water must be cheaper than by rail; but Sir Sandford Fleming has given the weight of his great authority to the statement that this axiom needs qualification. "Take for example," he says, "the Erie Canal; the transportation of grain by that route reached its maximum in 1880. For twenty years it steadily decreased until 1900, when the amount carried was only one-fifth of what it was in 1880. During the same period, the New York Central and Erie Railways increased their tonnage in this class of freight no less than six times. This result, indicating a remarkable change, is given on no less an authority than the President of the American Society of Civil Engineers," and Sir Sandford Fleming adds: "It certainly gives strength to the opinion, which I share, that there is a possibility of establishing a modern high-class railway, direct from the wheatfield of the Great North-West to Canadian Tide water, which will all the year round outstrip any other means of communication."

So immense an amount of grain is being grown in Western Canada, that already there are not sufficient ships, or sufficient railways to carry it away; and as it goes on increasing, the difficulties of transporting it will become a pressing problem which will have to be met by the building of railways further and further north, and by the gradual opening up and development of the great unknown territory of Labrador, through which several railways are already projected.

The Canadian Central and Labrador Railway Company have obtained a charter from the Dominion Government to build a line from Winnipeg to Hamilton Inlet, and the All-Red Railway Company a charter to build another from Winnipeg to a point at or near the easterly boundary of the Province of Quebec; whilst yet another Company has obtained charters from both the Dominion and the Newfoundland Governments to continue the Quebec-Saguenay line along the north shore of the Gulf to Cape St. Charles.

It may be safely predicted that railway lines will, before many years, run not only to Hamilton Inlet, but to the Bay of Seven Islands, and to various other Labrador harbours.

It will not be possible to create an important commercial centre at each of these harbours; at the most, all that can be hoped for will be an irregular service of cargo boats.

But each one of these harbours could be connected, at small cost and without the necessity of transhipment, by a train ferry service *via* Bay of Islands, with a central terminal port at Green Bay, where there would be a constant stream of cargo boats, coming and going, to take away the grain and other freight brought there by all these radiating lines. Each one of these harbours would thus be assured of a speedy and uninterrupted dispatch of freight, and at the same time would obtain a rapid through communication for passengers and mails.

That is what has made Liverpool so great a commercial centre; and it is not impossible that Green Bay, for a similar reason, may some day become the Liverpool of North America; and that just as lines of steamers run from the Scandinavian countries, and from Germany, Holland, and Belgium to Newcastle, Hull and Grimsby, whence their passengers and freight are transshipped across to Liverpool, so some day there may be steamers running from various ports upon the Gulf of St. Lawrence to the Bay of Islands, Newfoundland, where, in like manner, their passengers and freight will be conveyed to Green Bay for shipment across the Atlantic; the only difference being that in the latter case, if the train ferry system be adopted, there will be no need for intermediate transhipment.

The necessity for establishing a cheap and expeditious route for grain which shall go eastwards through Canada is demonstrated very clearly in a pamphlet on the A.B.C. route for grain *via* Vancouver and the Panama Canal. (*Page 3.*)

If provision is not made for adequate transport facilities eastwards, the grain must inevitably seek the Vancouver route, and be sent thence through the Panama Canal; thereby greatly increasing the peril of interruption to our grain supply in time of war.

That is one reason why the Western Farmers in Canada have insisted on the Hudson Bay Railroad being built to Fort Churchill. The Hudson Bay route, it has been proved, cannot be open for more than from between two to four months in the year, owing to the difficulties with ice in the Hudson Strait. But the Bay itself could be navigated with ice-breaking steamers all the year round; for no icebergs or Arctic ice enters it. The only ice to be contended with would be the ice formed in the Bay itself, and that would present no serious obstacle.

A glance at the map will show that with ice-breaking train-ferries, a railway through Labrador to the St. Lawrence coast, and a through car connection thence to Green Bay a much shorter and cheaper route would be provided for the grain than by any of the existing Canadian routes, and one moreover further removed from the American frontier.

During the short period for which navigation will be open it may probably be found advisable for the Hudson Bay Grain Boats (which will have to be of special construction) to make repeated voyages from Fort Churchill to Green Bay—a distance of only 1,670 miles—where the grain could be transferred to other boats, or placed in elevators, instead of valuable time being lost by the Hudson Bay boats having to take it across themselves to Liverpool, which is 3,000 miles distant from Fort Churchill.

If this were done it would secure for the Hudson Bay Railway a through car connection *via* Green Bay with Montreal, Boston, New York, and all the great manufacturing cities of the New England States, and would at the same time enable the grain boats to secure a return cargo to Fort Churchill of the machinery and other manufactured articles necessary for the opening up and development of the North Western Territories.

None of the railways projected to run through Labrador will afford the Hudson Bay Railway so desirable a through connection with the Eastern Manufacturing centres.

It would obviously be much more advantageous that the termini of these railways should be at Green Bay, connecting with it by train ferry to the Bay of Islands from some suitable point or points on the Labrador coast. Until it is decided to build the tunnel under the Straits, this would save many hundred miles of expensive railway construction, and would insure a better and safer ocean connection.

As Mr. McGrath has pointed out, unless the Straits were tunneled, "there would be little point in building a railroad through the Saguenay country, as it is termed, for the sake of the brief summer period when it would be possible to run steamers to Labrador, because there are numerous harbours along the Gulf that would serve the same purpose at far less expense."

Sir Robert Bond, in the speech he made in the Newfoundland House of Assembly, on the 28th February, 1907, when introducing the proposals for the Newfoundland Trans-Atlantic route, laid especial stress upon its importance for the transport of grain.

His remarks were chiefly made in relation to a tunnel under the Straits of Belle Isle; a project which has been given up for the time being in favour of a train ferry, to which however, they are equally applicable, as a train ferry will supply, though not quite so efficiently as a tunnel, the desired through route for grain, direct to Green Bay, without transhipment or necessity for handling in transit.

"But it is the wheat trade that is the most important. When speaking on this matter in 1902, I referred to the possibility of the Dominion of Canada becoming the main source of the food supply of Great Britain. Great Britain has to depend very largely for her wheat supply upon the United States, Russia, the Argentine Republic, Canada and India, as a consequence of the falling off of the area under cultivation, and the increase of her population. Thirty years ago the United Kingdom produced 120,000,000 bushels of wheat, and imported only 64,000,000 bushels. The production in 1901 was only 55,000,000 bushels, while the importation of wheat and flour was 186,000,000 bushels, the area under cultivation having decreased from 3,800,000 acres to 1,740,000 acres in 1901. *Broomhall's Corn Trade Year Book* for 1902, said:—

"Under the present conditions it seems quite likely that the production of wheat in the British Isles will sink to a mere 20,000,000 bushels, whereas if the population increases during the next twenty years at the same rate as it has done in the past twenty years, there will be 50,000,000 people to feed, who will require nearly 320,000,000 bushels per annum of wheat alone. No man who is acquainted with the position of food supply in Great Britain, can doubt that America and Russia together could exact any terms from Great Britain in six months by simply prohibiting the export of grain and provisions."

"With the marvellous development of the North-West of Canada, that danger is rapidly disappearing. It is beyond dispute that before long Canadian production will enable the United Kingdom in time of stress to be almost independent of any other source of supply. While India produces only ten bushels to the acre, the rich unfertilized areas of Canada produce twenty-five bushels to the acre. In the year 1901 the production was 63,425,000 bushels, from a little over 2½ million acres. The importance of having a route by which this immense wheat supply could be carried to the British Isles, comparatively free from danger in time of war, does not need to be dwelt upon.

"Five Years Ago a Temporary Scare was created in England

by the production of a statement showing that during the previous ten years at no period did the United Kingdom have sufficient stocks of wheat and flour for more than seven weeks consumption, and that frequently the stocks had fallen as low as two weeks' consumption. It was suggested by certain military authorities that warehouses or granaries should be erected in various parts of the United Kingdom for the storage of six or twelve months' supply of food stuffs. In 1903 Mr. Theo. V. S. Angier, F.S.S., in a paper which he read

before the City of London's Tradesmen's Club on the subject of England's food supply in time of war, dealt with the question of the establishment of such warehouses or granaries, and showed the enormous cost that this would entail on the Imperial exchequer. He said:—

"Contemplate for a moment what the storage of twelve or even six months' supplies of corn would mean. We imported, according to the Board of Trade returns, 192½ million cwts. corn, flour and meal in the whole year 1901, or 96½ million cwts. for six months at a cost of £30,000,000. Calculating interest at 4 per cent. per annum, warehouse rent and charges according to Dock Tariffs, and we have the annual expense of over £5,000,000 to keep this six months' store of wheat and flour. But if storage be necessary or advisable as a precaution, it is not reasonable to suppose that bread-stuffs would be sufficient; we should with equal reason require to keep like stores of eggs, animals, meat, rice, sugar, tea and tobacco, as necessities, and six months' imports of these articles came to £46,000,000 in 1901. Interest on this sum would represent £1,840,000 per annum, rent and charges and loss in deterioration another £1,500,000. Thus a storage for six months of the ordinary necessities of life would entail an annual charge of some £8,000,000 to say nothing of the disorganization of trade by introducing the Government as a large dealer. Or if, as would be more reasonable, the Government paid a premium to traders and farmers for storing, bonding and stacking the six to twelve months' supplies, the cost would be equally great. Would the country face such a burden added to its already heavy weight of taxation? I doubt it, more especially as the necessity for it cannot be proved."

"The adoption of a grain route *via* Newfoundland, which I have outlined, would entirely obviate the necessity for such an expenditure, because a continuous train service from the Canadian North-West *via* the Belle Isle tunnel, and on to Great Britain would bring abundant supplies within three days' steam of England.

"The question of tunnelling the Straits of Belle Isle opens up a still broader view of the outlet for the wheat supplies of the great North-West—the cheapening of its cost of export as well as its safety in transfer. Mr. T. C. Davis, M.P. for Saskatchewan, said at Ottawa in March, 1902:—

"What we want is a continuous line of railway which can be operated twelve months in the year, and double-tracked, if necessary. Last year, 400,000 people in the North-West produced 100,000,000 bushels of grain. We are going to get people in there at the rate of 100,000 per year, and in eight or ten years the production of that country will be increased to 400,000,000 or 500,000,000 bushels. Wheat will have to be carried to the seaboard, and that cannot be done over our canals when they are frozen over six months in the year. What we want is to be able to put our wheat in the car and run it through to the seaboard. Then we have to take into account the depreciation in the value of the wheat and the charges for interest and insurance if it has to be stored over during the winter, which must amount to at least six cents per bushel. There is also this further point to be considered. If we have to depend wholly upon our canals we will have to store an immense quantity of wheat in the elevators at the head of Lake Superior, and when navigation opens in the spring and we throw that on the markets of the world, down goes the price, so that our farmers will be out, not only by the loss of storage and insurance, but also by the depreciation in value on account of such an immense quantity being thrown in the market. What we want is a continuous line of railway from west to some ocean port."

"This is precisely what the Belle Isle tunnel in connection with the Newfoundland short line would provide."

The proposal to tunnel the Straits of Belle Isle has only been deferred, it has not in any way been abandoned; for the advantages of a tunnel would be so great that before long the making of it must certainly be undertaken for commercial as well as for strategic reasons. That question has however been dealt with under a separate head.

Importance of Fortifying St. John's.

In another statement made by Sir Robert Bond, on the question of Imperial defence, he again dealt very fully with this all-important question of a Grain route. The views he then set forth regarding the desirability of fortifying St. John's would apply with equal, if not greater force, to Green Bay.

"The problem of securing the full wheat supply for Great Britain, and arranging for its transport across the ocean, having been briefly considered, it now remains to discuss the question of how the Atlantic Sea route is to be kept open in the event of the Empire being faced with a Naval War. Britain's only fortified base in North America to-day is Halifax, and that is, I submit, of little or no value as bearing on the St. Lawrence route. Steamers plying along the ocean highway do not approach Halifax at all, and it is a two days' run from there to the Grand Banks, where the danger zone may be said to begin. From the east coast of Newfoundland to the shores of Ireland stretches an unbroken expanse of 1,700 miles of ocean, free to the cruisers of any nation with an Atlantic outlet. Should war break out, British Grain Carriers would have to run the gauntlet of this area, with all the dangers that fact implies. If they were chased, there is no port of refuge to which they could fly; if they were under convoy, there is no harbour where they could be herded while their escort beat off an attack in force, or repaired damage after a fight. England is without a single defensive base on all our long coast line, commanding though it does the ocean shipping road along which passes the commerce of two hemispheres. While the seas within a radius of 200 miles of Cape Race are thickly dotted with steamers daily, there is not a single fortified harbour upon which they can rely for shelter, though St. John's is only five hours run from that headland, and could be fortified with a minimum of expense, so admirable are its natural features."

"St. John's is a harbour with a narrow entrance between steep hills 600 feet high, topped with the ruins of old forts, used when the town was garrisoned. It could be re-fortified, and made virtually impregnable at a moderate outlay, and as it has the largest dry dock in North America, the repair of warships at that point is entirely practicable. Given such conditions as a fleet of grain carriers attacked near the Grand Banks, they could bear up for St. John's, and probably arrive there safely, while the cruisers escorting them withstood the enemy. The essential fact to be considered is, I submit, that under existing conditions a British convoy, or a weak British fleet, east of Cape Race, has absolutely no chance of escape from a more powerful enemy. Away in mid-ocean, risks must be taken, for there is no means of overcoming nature's disadvantages, but if a convoy with grain, on the safe arrival of which in England the fate of the Empire depended, was attacked within sight of Cape Race as things now are, its condition would be hopeless; whereas with St. John's fortified, the ships could be securely anchored within that port in a few hours to await the arrival of a British fleet strong enough to escort them across the ocean."

"The advantage of fortifying St. John's would be that it would enable England to dominate the North Atlantic absolutely; but, as the case now stands, a freighter leaving Montreal has no semblance of protection from the moment of departure until she nears the British Isles. A fleet of grain carriers would be equally undefended except for its consort."

And of Fortifying Green Bay.

Now, if Green Bay were to become an important Ocean Port all that Sir Robert Bond said about St. John's would apply equally to it, and Green Bay would, in that case, be singularly easy to fortify. It is a long fiord running in 18 miles from Notre Dame Bay proper. At its entrance it is only $2\frac{1}{2}$ miles in width, and it includes three large inner arms, viz: North-West Arm, Middle Arm, and South-West Arm.

The South-West Arm, the most important and extensive of these three arms of Green Bay, at the head of which the railway terminus is to be, is simply the prolongation of Green Bay after it begins to contract in width. Middle Arm Point, on the north side, and Birch Head, on the south, form the entrance to this Arm. From there to Mansfield Point it is seven miles, with an average width of about three quarters of a mile, the shores on both sides being tolerably straight, with no indentations of any importance on either side; those on the north being for the most part precipitous, and rising into bare-topped bleak

hills of considerable elevation, the highest over 1,200 feet, whilst on the south they are low and densely wooded. At Mansfield Point, the arm widens out for two miles further to about a mile and a half in width, contracting again for another mile to its extreme head, which is, roughly speaking, ten miles from the entrance of the South-West Arm, and 18 miles from the outside entrance of Green Bay.

If the outer headlands at the entrance of Green Bay were fortified it will be seen that they would enclose a magnificent land-locked harbour, comprising within it three great inner harbours—almost invulnerable to attack—in which the fishing fleets, as well as the ocean steamers and grain carriers, might all shelter at the same time with perfect ease. If, in addition, a few guns were placed at the entrance of the long inlet to the South-West Arm it would render that harbour practically impregnable. The Atlantic Cable and the Marconi Station would also be thereby secured from attack. And, if the different Canadian grain outlets were to converge upon Green Bay as their Atlantic terminal, it would be a comparatively easy matter to protect the grain carriers on their way across the Atlantic as well as when lying in port.

THE HUDSON BAY ROUTE AND LABRADOR.

The difficulties attendant on the Hudson Bay route were set out in a communication from St. John's, dated September 20th, 1910, which appeared in the *Financier* on the 7th October, 1910, extracts from which follow:—

THE HUDSON STRAIT.

“ Certain important facts stand out prominently when one considers this question of Hudson's Bay navigation. It never entirely freezes over, but is rarely completely clear of ice; floes and bergs being almost always found on some part of its vast bosom. It would, in itself, though, offer no serious obstacle to successful navigation were it not for Hudson Strait, the length of which is about 500 miles, while the width varies from 60 to 300 miles. This Strait is absolutely blocked during the winter months by ice which is forced into it from the Atlantic seaboard on the east and from the sub-arctic waterways on the west, as well as the ice which is actually formed by the process of freezing within its own areas. This Strait is blocked for at least seven months of the year, and the question of the navigability of Hudson's Bay really turns upon the question, for what period of the remaining five months is it possible for steamers safely to traverse this floe-clad waterway? Canadian unofficial opinion is that it is safely navigable for four and a half months, or four months at least, but the experience of Canadian expeditions fitted out for the special purpose of investigating this question very thoroughly, presents a different view of the matter.

REPORTS OF VARIOUS EXPEDITIONS.

“ In 1882-3-4 Canada dispatched an expedition under Commander Gordon in the Newfoundland steamship *Neptune*, to inquire into the navigability of the Hudson's Bay route.

“ The difficulty of the situation is set out by Commander Gordon in these words:— ‘ Having now made voyages in three years to Hudson's Strait, and having carefully examined the reports by the observers as to the formation and movements of the ice in Hudson's Strait, I have the honour to submit this statement in regard to the navigation of these waters. In discussing this question I think it well to explain that I am not required to report on the commercial aspect of the case and whether Hudson's Strait navigation can be made to pay, nor do I, in the seasonal limits given, mean to state that it is impossible for a ship occasionally to get in earlier or

leave later; but having carefully considered the subject I give the following as the season during which navigation may, in ordinary years, be regarded as practicable for the purposes of commerce. I consider that the season for opening will, on the average, fall between July 1st and 10th. The position and movements of the ice I have already discussed and need not here repeat. The closing of the season would be about the first week in October, partly on account of the descent of old ice from channels into the western end of the Strait, this old ice being rapidly cemented into solid floes by the formation of young ice between the pans, in which ice no ship, however powerful, could do anything to free herself. At this time, too, the days are rapidly shortening, and snowstorms are frequent, though not of great duration.”

The statements in the above article are fully borne out by the Official Report of the Naval Department of the Canadian Government for 1912, which describes the voyage of the Government Survey Steamer *Minto*, and shows that heavy ice was met with in the Hudson Strait even so late as August. The following extracts are taken from that Report:—

“On July 27th, we were off Cape Chidley. At 4.30 a.m., the tow line was parted by fouling a large pan of ice, although the *Minto* was speeding very slowly. . . . At 4 a.m., on July 26th, we entered another flow of Arctic ice, probably from Gabriel Strait. On clearing this ice the speed was increased about 8 knots until noon. This also proved to be Arctic ice, some very large pans closely packed together in places. Fair leads could be picked out from the masthead, but there was no clear water visible. At about 1.30 p.m. we glanced off a large pan, which it was impossible to avoid, and the starboard anchor caught, tearing away the hawsepope and considerably damaging the plates near by. On examination it was found that the hawsepope was completely shattered and must be removed. An old iron door was used for a patch, the most was made of everything available. At this time one of the schooners was reported to be damaged and taking water fast. The fore foot had been carried away by ice. The schooner was brought alongside and cleared of water by steam pumps. A spare foresail was then stretched under the bow and drawn up as tightly as possible on either side when quantities of ashes were thrown into the sail from the *Minto* and the suction produced by the leak almost stopped it in a few hours. This was most satisfactory as the situation began to look serious. The engineers worked all day at repairs. The ship drifted about 13 miles to the north-west in 24 hours and we were surrounded again by Arctic ice in very large pans, and in fact small icebergs.

“Monday, July 31st, heavy ice was drifting past. The crew were engaged in trimming coal aft to bring the ship up as much as possible in better shape for the ice. August 1st, the damaged schooner was beached in Wakeham Bay and the damage was repaired as well as possible with the tools and material at hand.

“On August 3rd, about midnight, we ran into a field of Arctic ice, which had come down from Fox Channel. The weather was very thick and the ice closely packed so we made fast to a large pan, as it was impossible to pick out any leads through which we might make a safe passage. On August 4th the fog was very dense and we were hove to all day, not considering it safe to make a move under the conditions. At sundown the fog lifted, we were lucky enough to completely clear the ice before the fog closed in again. This was the last ice met with, for which I was very thankful. We arrived at Fort Churchill on August 7th. While crossing Hudson Bay the weather was fine, but foggy.”

It is evident from the above extracts that the steamers used for bringing the grain from Fort Churchill will have to be specially constructed to enable them to contend with heavy ice. That being so, the suggestion has been put forward in Canada that during the brief period for which the Strait will be open, instead of taking the grain direct to Europe it would be better to make short and rapid voyages to Cape St. Charles, or to some other suitable point on the Labrador coast, unload the grain there into elevators, and call for it again later on in the year to take it across the Atlantic. There is, however, an alternative

which has much to commend it. Instead of erecting elevators at Cape St. Charles, which is entirely isolated, and unconnected with anywhere, it would be quite easy to run the steamers a little further down to the new port in Green Bay, where the grain could be at once trans-shipped, and taken across to its destination without incurring the expense of lengthy storing in elevators, or where, if elevators were found necessary much greater facilities would exist for the subsequent handling of the grain.

Moreover the steamers, constructed as they would have to be, to contend with the exceptionally heavy ice of the Hudson Strait, would have no difficulty whatever in keeping the Green Bay route open for the whole of the winter; for it is confidently asserted in Newfoundland that the ice there would offer no insurmountable obstacle to specially built cargo steamers.

Green Bay would also afford the Port Churchill steamers a direct through car connection with Montreal, New York, Boston and the other great manufacturing cities of Canada and New England, and would enable them to carry back as a return freight the machinery and other things requisite for the development of a new country.

There is, besides, another possibility for the Hudson Bay Railway which may have very far-reaching consequences, and incidentally may lead to the opening up of the vast unknown territory of Labrador.

It used in the 18th century to be called New Britain, and it is possible that it may yet become a very thriving and important portion of Canada, for it is known to contain great mineral wealth, timber and other natural resources.

Nor is it nearly so cold and unfertile a country as is generally supposed. Most people derive their idea of it from the forbidding coast line on the western side of the Gulf of St. Lawrence, the grim aspect of which so impressed Jacques Cartier, when he sailed along it in the 16th century, that he exclaimed: "apparently this is the land that God assigned to Cain."

What causes it to be so bleak and desolate is the influence of the Arctic current which runs along the northern coast, and then setting in through the Straits of Belle Isle, chills the whole of the Labrador seaboard as far as Anticosti, rendering it much colder than from its geographical position it ought to be.

Some years ago Mr. Thomson canoed about 100 miles up the St. Marguerite River (which is the next river southwards from the Bay of Seven Islands), and found to his surprise that the country improved greatly the further inland he went, and that on the Central Plateau, from 1,500 to 2,000 feet in height, which forms the interior of Labrador, the vegetation was much more luxuriant, and the land altogether more fertile looking than it is on the coast. He did not at the time understand the reason why, but Sir William MacGregor, who was then the Governor of Newfoundland, to whom he was describing his journey, explained it at once by pointing out that when travelling inland the influence of the Arctic current diminishes, and the climate reverts to a great extent to its natural isothermal.

Mr. Holme, who made an adventurous attempt in 1888 to reach the Grand Falls of the Hamilton River, found the same difference in climate between the interior and the coast, and the same difference in the character of the country.

In a paper read before the Royal Geographical Society, he said: "On the Labrador coast not a tree is to be seen. There is nothing but bare rocks and occasionally a little stunted grass. It is almost perpetual winter. The reports of the fishermen and mariners, to whom this uninviting prospect was displayed, gave the country its character, and there has been created a false impression that the interior of the country is fairly sampled by the coast. The Arctic current, with its icebergs and icy waters, freezes the coast but has no effect on the mainland. At a distance of not more than 12 miles from the coast there

commences a luxuriant forest growth, which clothes the whole of the country, with the exception of a few spots, chiefly towards the north, called 'barrens.' These barrens are what we should call moors, and are the homes of vast herds of cariboo. The climate a few miles inland is totally different from that on the coast, a journey of 20 or 30 miles in summer time up the country from the sea is like passing from winter to summer."

In the discussion which followed the Rev. J. J. Curling, F.R.G.S., stated that part of the coast of Labrador was in his rural deanery, "The coast was in great contrast," he said "to the interior. It was barren and bleak, the drift ice coming down from the north, preventing any vegetation; whereas inland the scenery became picturesque, with large trees, growth being very rapid in the summer months."

The Report of Mr. Low (the present Director of the Geological Survey of Canada) on the interior of Labrador shows that Labrador is a country full of mineral wealth, and that it would not be difficult to build a railroad through it. It would be exceedingly difficult, however, as well as costly, to build a railway northwards along the coast from Quebec, because it would run at right angles to all the rivers; and there would be innumerable small streams to cross, as well as large rivers which there would be great difficulty in bridging.

On the other hand, it would neither be difficult nor costly to run a railway along one of these rivers to the watershed, and from there down to the eastern shore of the Hudson Bay, along one of the rivers which flow westward from the height of land to that Bay.

Such a railway will certainly be built before many years, and it may very probably then be found that Labrador is quite as inhabitable a country as Saskatchewan or Northern Manitoba, and a great deal nearer to this country.

It would not be a grain country, but on the other hand there would not be the immense stretches of swamp and muskeg which occur in the north-west territories; and it is believed that its mineral wealth would be greater, with an abundance of water power for its development. Mr. Beccles Willson, in his recent book, *Quebec*, shows what immense power is available for development in Labrador. He states that it is estimated that the Grand Falls of the Hamilton River, alone, can supply an energy of 9,000,000 horse power.

When this Labrador Railway is built, a steamer connection could easily be maintained all through the year between Fort Churchill and the terminus of the line on the eastern side of Hudson Bay, for that Bay never quite freezes over. An ice-breaking car ferry would have therefore no trouble at all in crossing it all through the winter. The tides are high, from 10 feet to 16 feet on the western side of the Bay, and from 6 feet to 10 feet on the eastern side, but these tides are not so high as in the English and Irish Channels, where, though they will complicate the difficulties of train ferries they are not deemed to present, in any way, an insurmountable obstacle. The Bay too, is less subject to storms than the Great Lakes.

A Company called the North Railroad Company has recently been granted a charter by the Quebec Government to construct a line from Montreal to James Bay, with the intention of making a steamer connection between that Bay and Fort Churchill, which, it is contended, will be able to be operated all the year round.

Mr. Clergue, one of the projectors of the new line, in an address to the Canadian Club recently at Montreal, pointed out that this will produce a great saving in rates, inasmuch as 600 miles of water transport will replace a 1,000 mile rail haul. It possesses a further economical advantage in being roughly 250 miles shorter than the route through Fort William, and will mean a saving of about 10 cents a bushel in the journey to Montreal. He also laid stress on the possibilities of an immense development in the fisheries of the Hudson Bay.

But a railway through Labrador, from the St. Lawrence coast to the east side of Hudson Bay, would tap these fisheries quite as effectually, and would tap also the immense

supplies of white fish and other fresh water fish which exist in great numbers in the innumerable lakes with which Labrador is covered. It would also have a much greater advantage in point of distance, and would provide an exceedingly short and direct route to the west, and one which, like it, would be open, practically, for all the year; being closed at the most, in exceptional years, for a month or six weeks in February and March, if there happened to be a block of ice in the Gulf of St. Lawrence.

Sir Sandford Fleming in an illuminating address to the Canadian Club at Toronto, on Feb. 24th, 1904, ventured upon an interesting forecast:—

“ Looking forward but a few years the Dominion may come to possess in the hinterland of Ontario a new seaport. As is well known, the northern boundary of this province reaches Moose Factory on the south coast of the Hudson Bay. Perhaps Moose Factory may not be the best naval point on that great inland sea, but whatever point may be favoured, the new seaport would in some respects resemble Archangel. That Russian port is in a parallel of latitude $13\frac{1}{2}$ degrees (or more than 900 miles) further north than Moose Factory. Archangel is a seaport of importance, with a dockyard and a prosperous shipping trade, its population is not inferior to some of our Canadian cities, and before the founding of St. Petersburg it was long the only seaport within the limits of Russia. Can any person now living foretell what the only seaport of Ontario may yet become? ”

It may safely be predicted that if, with the opening up of Labrador, the Hudson Bay were to become the medium of communication between the north-western and the north-eastern territories of Canada, not one but several ports would rise up upon its shores which would rival not Archangel but Riga in importance and volume of trade.

IMPORTANCE OF ROUTE IN RELATION TO AN ALL-RED CABLE LINE.

If Green Bay ever springs into importance as a great shipping and commercial centre an Atlantic cable will assuredly have to be laid there as soon as the growth of the port justifies the expenditure. And from an Imperial point of view the advantage of having at least one Trans-Atlantic cable passing through Newfoundland, *via* Green Bay and the Bay of Islands, will be very great.

Sir Robert Bond made the importance of the cable routes very clear, in the statement which has already been quoted from, when dealing with the importance of Green Bay as a grain route:—

“ It has been said by a Member of the House of Commons that from the war point of view, all British cables may be regarded as fleet auxiliaries, and I presume the soundness of the position will not be questioned. Vast commercial interests as well as naval are involved in the preservation of them. Across the bed of the Atlantic Ocean to-day there are fourteen electric cables, ten British, two German, and two French. These fourteen cables represent the only means of rapid communication between the two hemispheres. (*Since this was written wireless telegraphy has altered this*). They carry about ten thousand messages daily and bring into touch all the countries of the world. All of them save the latest French, namely, that between Brest and Cape Cod, pass over the Banks of Newfoundland, and five of them lie close together within a few miles of Bacalieu, at the entrance of Trinity Bay. The depth of water on the Banks is not very great, being only from 50 to 100 fathoms. It must be remembered that the location of all these cables as they approach the shore of Newfoundland is known; that the destroying could be done under the cover of darkness. That there is no way of fixing the responsibility upon the

nation or person offending, for, so far as I am aware, there is no international law against cable wrecking. It does not need a special cable ship to destroy these lines. Any sea-going tug with a substantial grapnel and hawser could do it."

"The argument may be advanced that the cables in the shallow waters off Cornwall may be cut. But there is less likelihood of this being done on the English side than on the Newfoundland side, because the active patrols of cruisers would make it difficult, whereas on the Newfoundland side there is nothing to prevent it. Similarly, if a cable was broken in English waters, it could be speedily repaired; if broken on our side repairs would be next to impossible, because a cable ship might not be available, and there is no reserve supply of cable kept on this side of the Atlantic except in the repair ships. In other words, the whole American seaboard, from New York to St. John's, would be helpless to make good the damage, unless a cable ship could be got and escorted to the scene to repair the breaks."

"I cannot too strongly reiterate that there is no place in the world where more direct injury can be done to cables in a day or two than along the Newfoundland coast as things now are, and it is unnecessary to dilate on the prodigious indirect consequences to the whole civilised world of severing these cables and setting the hemispheres a week apart. If the cable breaking was quickly and quietly done, the whole British fleet in North American waters would be cut off from communication with England. (*Not now, with wireless telegraphy.*) So would Canada, and so too would be the Pacific cable now being laid to connect the Canadian system at Vancouver."

"The military and naval consequences which would follow upon the rupturing of the cables cannot be adequately foretold. They might be of the most tremendous magnitude, and result in completely overturning existing conditions, and seriously injuring British prestige. Yet to-day there is this weak link in our chain of inter-Imperial communication."

"As instancing the possible contingencies to follow upon such a general cable breaking, it is only necessary to recall the panic which prevailed in the United States in May, 1898, when it was not known how Cervera's fleet was approaching that seaboard. If the cables were destroyed across the Atlantic, it would be impossible to know what battles were being fought, what the progress of land and sea warfare was, and what conditions prevailed in any country in Europe."

"In the Cervera scare the fall in American stocks was appalling: in the Venezuela episode of President Cleveland in 1895 an even more disastrous financial panic ensued, but it is safe to say that neither would be at all comparable with the consequences which would ensue from the breaking of the cables across the Atlantic."

Now the route to Green Bay passes north of the Grand Banks, in deep water all the way, and the hundred fathom line passes well up into the inner bay, so there would not be the same danger of the cutting of a cable laid to that port as there is to those passing through the shallow waters of the Grand Banks of Newfoundland, and of the Little Banks, around St. Pierre.

And if the cable laid there were to be continued on to the Bay of Islands and thence through to Gaspé, it would be so entirely in British waters, and in British territory, throughout its whole length—so far removed from the danger of interference by any hostile power—that it would provide an All-British cable which would be practically guaranteed from injury both on its Atlantic side and in the Gulf of St. Lawrence.

A Marconi station erected on the summit of the hill—marked in the Admiralty survey as 1,200-ft. in height—which stands at the western entrance of the south-west arm of Green Bay would be equally secure from attack.

Wireless telegraphy has obviated, to a great extent, the danger which Sir Robert Bond depicted of the cables being broken, and Great Britain being cut off from communication with Canada; but for that very reason it is necessary that the wireless stations on land should be erected in those places where they can be rendered most secure—where they could not easily be shelled, or otherwise destroyed—and no better place could be chosen for that purpose than the inner harbour of Green Bay. (*See description of Green Bay Harbour at end of section dealing with Green Bay as a grain route.*)

GOVERNMENT TAX UPON THROUGH MAIIS.

One very important item of revenue for the Green Bay Railway would be the tax which the Newfoundland Government would be entitled under the International Postal Union to charge on all letters and parcels in transit across the Island.

This question is fully dealt with in the appended speech by Sir Robert Bond.

If the Newfoundland Government should not desire to grant a yearly subsidy to the railway, or to guarantee its Bonds, it could at any rate assign to the railway company whatever amount might be derived from this source.

And as the Green Bay route would undoubtedly furnish the quickest possible mail service during at least eight months of the year both to Canada to the United States, the yearly revenue would, as Sir Robert Bond has shewn, be a substantial and increasing one. It would more than pay the yearly cost of operating the railway, and would probably be sufficient to defray a considerable portion of the interest on the Bonds.

It might, however, be preferable instead of this variable source of income, to arrange with the Government for a yearly subsidy for working the line, or for a guarantee for a certain number of years of the interest of the Bonds which would have to be issued to enable the railway to be constructed.

AN IMPORTANT STATEMENT.

By the Right Hon'ble the Premier in Closing the Debate on the Short Line Scheme.

"Under the Postal Union, of which the Colony is a member, all letters, postcards and parcels in transit across the Island would have to pay a special and specific tax. In the year 1906 the Postal Union Congress was held in Rome, Italy, when it was determined as follows:—That statistics shall be taken every six years for the purpose of calculating the payments due for the transit of mails. The process of taking statistics was then considerably simplified as compared with that which obtained formerly. Henceforth closed mails will be weighed in the bags, and from the gross weight 10 per cent. will be deducted in respect of packing and of correspondence entitled to pass free of charge. During the statistical periods, the first of which will be in November, 1907, letters and postcards must be packed separate from other articles. In the case of closed mails, the fundamental land transit rate will be 1 fr. 50 c. per kilogramme of letters and postcards, and it was decided to apply multiples of these rates to all transits of exceptional length. It will be observed that the right of transit of mails is guaranteed throughout the whole Union, and the transit rates are paid to one country for transporting by its services the mails of another country in transit to a country beyond.

"This Colony has been a member of this Postal Union for the past 30 years, but hitherto has not received any revenue from this source, because in no case did mails of any foreign country pass through our territory. But let the proposed Short Line route prove itself the quickest and best that it is possible to obtain and quantities of mail will cross the Island from Europe to the West, and *vice versa*, upon which the minimum transit rate will be 1 fr. 50 c. per kilogramme. Taking the year 1901 as a basis, nine countries in Europe sent 462,000 letters to Canada, and 695,000 to Japan and China, while even Egypt sent 1,500 letters to Canada. These figures, with replies added, would equal 2,317,000 letters. Japan, Victoria and New Zealand sent 2,100,000 letters to Great Britain, which, with replies added, equals 4,200,000, or all these countries put together equal 6,517,000 letters. Having reference to our immediate neighbours, Canada and Great Britain; the figures concerning the exchange

of foreign mails are not at present available, but as 323,644,000 letters were posted in Canada last year it is safe to say that 15,000,000 of them went to the United Kingdom, and that another 15,000,000 returned from Great Britain to Canada. Taking the whole sum of all the foregoing we have a total of 36,517,000 letters which might pass through Newfoundland annually.

"If these letters were sent by regular mail across this Colony we should have an annual income from that source amounting to \$130,000 per annum for territorial transit of letters only. The nine countries referred to sent 1,100,000 papers to Canada, China, and Japan annually, and the number passing from Canada to Great Britain and elsewhere is enormous. A low estimate of the paper mails, if we obtained the business, would place the value to Newfoundland at \$50,000 per annum, making a sum total of \$180,000. For exactly the same kind of service the post office of the United States receives yearly \$160,000."

AGRICULTURE.

Very little of the land in the interior of Newfoundland has been cultivated. There is a certain amount of farming on the east coast, and around St. John's, and a little in the Codroy Valley, on the west coast, but the interior of the island is practically untouched.

There is no reason, however, why it should not in time support a large population. Judge Prowse puts the matter very fairly in his guide book: "Much injury has been done to the Colony by the exaggeration of some local writers, and by the depreciation of others. Newfoundland has neither the climate of California nor the soil of Manitoba. It is absurd on the other hand to picture the country as a barren wilderness with an arctic climate. There is plenty of really good agricultural land in the island. What good intelligent farming can accomplish is best shown by a visit to Ruby's, Lester's or Nash's farms outside St. John's. Better tilled lands and finer crops of cabbages, potatoes, turnips, beets, oats, barley and hay, cannot be seen anywhere; their land is only fairly good, and neither the climate nor the soil of the east side of the island can be compared for a moment with the west coast. It is unfortunate for our reputation as a farming country that the skilful expert agriculturists are on the Atlantic side, whilst on the Codroys, St. George's Bay, &c., the farming is slovenly, and the agricultural methods primitive."

Professor Murray expressed a favourable opinion about the country between White Bay and Deer Lake: "By a rough measurement of this tract of country, made upon the plan, there would be an area of about 429 square miles, or 274,560 acres, at least one-half of which is probably well adapted for raising almost every kind of agricultural produce." And again, when describing the country around Norris' Arm (Notre Dame Bay): "The fertility of the soil, at this part of the region, is amply testified wherever cultivation has been attempted, producing roots, potatoes, grass and other crops of the finest description, while as a grazing or stock-raising country it can hardly be surpassed. The surface soil is generally of sand, or a sandy loam, which at the upper part of the valley is overlaid by a drift of clay and gravel, while at the lower parts the sub-soil is tenacious, bluish or drab-coloured clay, which is occasionally slightly calcareous." (*Geological Survey.*)

Newfoundland is not a corn country like Canada, but it might become a very thriving agricultural country if there were sufficient population to develop it; and that population can only be induced to come if means of access to a market be provided.

Sir John Harvey, the Governor, when addressing the Legislature in 1842, said with regard to agriculture: "Newfoundland in many respects need not shrink from a comparison

with the most favoured Provinces of North America. Its summers, though short, enjoy an extraordinary degree of vegetative power, which only requires to be duly taken advantage of; its winters are neither unusually long nor severe, and its autumnal seasons are as open and fine as those of any of the surrounding Colonies. In point of rich natural grasses no part of British North America produces greater abundance."

Sir Stephen Hill, who was Governor in 1873, expressed himself quite as strongly: "With regard to the products of the Colony, potatoes, turnips, cabbages, peas, beans, and indeed all vegetables which grow in England, arrive at the highest state of perfection in Newfoundland. Of cereals, its barley and oats will not suffer by comparison with the produce of Nova Scotia; and even wheat can be ripened in spots, though, as a rule, not as a profitable crop."

Mr. Thomson came to much the same conclusion during a journey in the little known portion of the Northern Peninsula in the autumn of 1904: "And although the climate is a hard one—the winter long and the summer all too short—there is no reason to despair of the success of agriculture even in the Northern Peninsula, which the Arctic current, acting through the Straits of Belle Isle, has rendered less fit for cultivation than the rest of the Island. The conditions are not worse there than in Finland and Lapland, where the majority of the population depend mainly upon the land, and where, although wheat cannot be raised, any more than it can in the greater part of Newfoundland, they nevertheless make a subsistence from oats and rye, potatoes and beetroot, all of which do admirably in Newfoundland, although hardly any of the fishermen take the trouble to grow them." (*Geographical Journal, August, 1905.*)

Newfoundland is pre-eminently a root growing country; beetroot, turnips, parsnips, and all other roots do well; and it might easily become as great a potato producing country as Maine.

The *Encyclopædia Britannica* (11th Edition) sums up the prospects of agriculture in Newfoundland in the following words:—

"Until recent years little attention has been paid to agriculture, the belief being current that the interior of the Island was a desert. The reports of the Geological Survey dispel this fiction, it being conclusively shown that out of the 28,000 square miles of dry land over one-sixth, or 7,000 square miles, is available under suitable conditions for arable and for grazing purposes. The best land is situated in the Codroy Valley, which is rich in alluvial soil; that in the Bay St. George district is very fertile; and elsewhere many thousands of farmers could work to advantage. In 1874 only 36,339 acres were under cultivation. In 1901 215,529 acres were occupied, of which 85,533 acres were actually under cultivation, producing chiefly hay, oats, potatoes, turnips and cabbages. In the numbers of live stock there has been a notable increase, especially in sheep. Newfoundland seems especially adapted for a sheep grazing country."

A letter from St. John's, dated the 3rd May, and published in the *Financial News*, on the 29th May, 1913, describes the Agricultural Exhibition held in St. John's in the autumn of last year, and gives the opinions of the Canadian experts, who had come from the model farm at Truro, in Nova Scotia, to judge the exhibits.

"Dr. Standish said: "Not for some time have I seen such cabbages, turnips and potatoes. There is no doubt that Newfoundland is rich in soil suitable for the growth of these crops. The hay exhibit was equal to any I have seen in some of the Provinces of Canada, and the show in general was superior and better arranged to any I have ever before witnessed in this class." Mr. Moore said: "I was greatly surprised and delighted with the results. I have been present at eight County and Provincial Exhibitions, and Newfoundland is not behind any of them; the root crops, especially, were equal, if not superior to those exhibited in these places, and yet they can still be improved upon here, this being notably true of potatoes."

"Sir Ralph Williams, the then Governor, in opening the Exhibition, remarked "That the exhibition was valuable because it would help to dispel the impression that prevailed abroad as to this country being one shrouded in fog and engirt by ice, where agriculture was thought to be impossible and where fishing and trapping were the only pursuits. No idea could be more misleading: the agricultural possibilities of the island were enormous, and this exhibition was an evidence to the people themselves of what it was possible for them to do if they gave themselves up to the cultivation of the soil and the diversifying of their garden and farm products because there was no reason why they should confine themselves any longer to the staple products which were at present being grown, as they could raise a much greater variety of vegetables and fruits, and they should direct their attention to so doing."

If a land grant were given for the railway it would pay to bring out and settle emigrants upon the land on easy terms, for they would not only develop the country, but their produce would provide freight for the line.

SHEEP.

In the article by Mr. Thomson on the Northern Peninsula, to which reference has already been made, the following passage occurs:—"From Sandy Bay we followed the Government road along the sea-shore as far as the Portland Creek River, where we camped. A French sailor, Alain Ofry, who has settled here, said the soil in places was excellent, as good as any he had seen in his native Brittany. Potatoes, cabbages and turnips all do well. He has a large garden, eleven sheep and several cows. There is plenty of pasture for the cattle, and an abundance of hay. The soil, it is true, is boggy, but there is a strip, which he took me to see, running along the coast from half a mile to a mile in width, which consists of a dry peaty soil with a clay sub-soil of altogether about 5 feet, on which he said almost anything would grow. He told us he had no trouble whatever with the sheep, except from the dogs. He only had a few, but he thought there would be no difficulty in keeping any quantity that might be desired."

"The general view in St. John's is that the country is quite impracticable for sheep, the ground being too wet and barren; but so far as I was able to learn, both liver fluke and foot rot are unknown, and the few sheep that are now kept along the west coast, which is by far the most promising side of the island for sheep, do well, and have no difficulty in getting through the winter, and the exposure makes them grow a remarkably fine and full fleece, the wool fetching a high price."

"Whether sheep raising could ever be rendered profitable on a large scale can however only be demonstrated by one or two attempts, made by practical sheep farmers with a sufficiently large capital to ensure fair trial. If it could be, the market both in Great Britain and in America would be a near and a lucrative one."

"It is curious that the original settlers took a much more hopeful view of the question than the present generation of Newfoundlanders, whose attention is devoted almost entirely to the fisheries. Captain Hayes, whom I will again quote, said: 'The grasse and herbe doth fat sheepe in very shorte space, proved by English merchants which have carried sheepe thither for fresh victuall, and had them raised exceeding fat in less than three weeks.'

"There most certainly is no want of pools, and the constant rain, and the great extent of bog land have given rise to the opinion that sheep could not possibly thrive. At the present time there are not 100,000 in the whole island (at the last census there were 78,000) although it is a third bigger than Ireland.

"But in Finland, in which the proportion of water and swamp is even greater, comprising 32 per cent. of the whole, and where the rock formation is of a very similar nature, the number of sheep, according to the *Times Encyclopædia*, at the last census was found to be no less than 1,092,420, whilst in Norway there were 1,417,500, and in Sweden 1,261,493."

It is eight years since this was written, but the question whether sheep can be raised in Newfoundland on a large scale has not yet been solved. It is significant that

those kept by the fishermen have increased largely of late years. The census of 1874 gave their number as 24,984 whilst at the last census, as above stated, they amounted to 78,000. They do well in Western Canada, in Patagonia and in Iceland, in all of which countries the climate is far more severe than it is in Newfoundland. The crux of the matter seems to be in what food they can get during the winter. If they can get enough, and of a sufficiently nourishing kind, the cold, however great, will not do them much harm.

Now in many parts of Newfoundland there is not much grass, only moss, which they could not subsist upon; but even in those places there are various shrubs which they eat greedily. A Swede, who spent a summer in Newfoundland, formed the opinion that the sheep would do just as well there as in Sweden or Finland; he found the little Alpine birch growing in amongst the moss, which is what, in Finland, the sheep largely live upon. Timothy grass grows luxuriantly on the west coast, and so do various other grasses, and it would only require a comparatively small outlay to cut down or burn the long rank sour grass with which the marshes are covered, and to sow edible grasses in its place.

And it is a mistake to suppose that there are not some exceedingly fertile districts. Professor Alex. Murray of the Geological Survey, who came to Newfoundland from the Geological Survey of Canada, said about the stretch of level land lying between White Bay and the Bay of Islands: "Thousands of square miles of country have been laid out in townships, and already partially settled in Canada, either for purposes of lumbering or farming on the northern shores of Lake Huron, and many parts of the Lower Province, far inferior in most respects to this region of Newfoundland, which there can scarcely be a doubt is capable of supporting a very large population." (*Geological Survey*, page 84.)

"The islands and flats of the lower part of the Codroy River yield a luxuriant growth of wild grass, affording an ample supply of admirable fodder for cattle." Page 78.

"Grain crops and grass flourish luxuriantly wherever grown, and as an instance of its capabilities as a grazing country, I was informed by one of the residents that he had cut hay off one field for twenty consecutive years without ever having broken up the ground since the time of first clearing." Page 380.

"The table land on the summits of these hills, although too lofty and exposed for ordinary tillage seems nevertheless to be very well adapted for grazing ground, especially for sheep, and the wild grass which grows spontaneously in many of the little glens and sheltered places is of a very luxuriant description." Page 381.

Some years ago Mr. Thomson obtained a good deal of information about sheep in Iceland. There are a great many in the island, which largely supplies Denmark with mutton. They are kept out all the winter, and though a certain number die, the majority get through all right. The following details were given about the way in which they are kept:—"With regard to your enquiry about the breeding of Iceland sheep we are able to state the following: "Every Icelandic farm (*baj*) possesses some hundreds of sheep, which during the major part of the year must look after themselves, and graze on the mountain sides and the uncultivated fields outside the farm. The sheep are generally slaughtered during the months of October and November in such quantities as the result of the hay harvest necessitates. A good hay harvest means restricted slaughtering, while a poor harvest is accompanied by extensive slaughtering, so that the hay on hand may be sufficient to provide the remaining sheep left untouched with the necessary subsistence during winter. During a severe winter, there are always large numbers of sheep which succumb to hunger and cold. Shearing takes place in June, when the wool is washed and exported to England and Denmark."

If sheep can remain out all the winter in Iceland they could certainly do so in Newfoundland, where they could obtain more food, and of a more nourishing description.

"In Iceland the dogs are trained to trace the sheep which have got covered up with snow, and to dig them out. . . . The life of the sheep in these north-western islands

is a very hard one. In some parts of Iceland a small flock of ewes is kept throughout the summer in the neighbourhood of the farm, and milked regularly every evening, the milk being made into a peculiarly soapy kind of cheese. It is also the custom in many farms to build low sheds of turf in which the sheep may take shelter in bad weather, or may even be fed on hay."

"Both in the Faroes and in Iceland, however, a large part of the flocks winter out of doors, picking up a scanty nourishment from the vegetation in sheltered spots, and when this fails making their way to the sea shore to feed on sea weed. Though they may sometimes have to be dug out from under the snow, or even gathered together in turf enclosures during the winter, as a rule they are only collected three times, or even only twice, in a year. As a rule the flock is thus collected first in late spring or early summer, when the wool is taken; then about August, when owners marks are put upon the lambs; and thirdly in the beginning of October, or a little later, when those beasts which are to be killed for winter food are selected and slaughtered. The wool is soft and of a good quality."—ANNANDALE, *The Faroes and Iceland*, page 190.

In Newfoundland they would not have nearly such a hard time. Mr. A. B. Harding, of Bonne Bay, and several others who keep sheep on the west coast, stated that they allow them to remain out all the winter, merely accustoming them to come to the barn for shelter and food. Occasionally a sheep, they said, will go astray early in the winter, and will turn up again late in the spring, with a lamb running by its side; and the lambs born out on the snow are much bigger and stronger, they found, than those born under cover. The sheep could stay on the barrens during the heat of the summer, to escape the flies; and in the winter they could seek shelter in the wooded valleys from the cold wind and driving snow.

Mr. J. G. Millais, who is so great an authority upon all kinds of animal life, especially in wild countries, speaks very favourably of Newfoundland for sheep: "Nothing has struck me so forcibly in Newfoundland as the miserable quality of their sheep, and the fact that a considerable part of the fertile coast line would be made an excellent land for sheep-raising, if the right kinds were introduced.

"It has been my lot to wander much in the barren northern lands of Iceland, Norway, the Hebrides, Shetland and Orkney, and in these wind-swept places I have seen flocks of different varieties of sheep in a flourishing condition—in spots, too, far more unsuitable in every way than the south and west coasts of Newfoundland. In most cases the farmers of these inhospitable wilds depend almost entirely on their sheep, and could not live without them. What is to be seen in Newfoundland? Only here and there, in widely separated places, one finds a few miserable sheep, carrying such a poor quality of wool and flesh as hardly to be worth the raising. Now what is wanted is that the Government should take the matter in hand, and import a few flocks of the following sheep:—

"The Highland Ram of Scotland, which carries a magnificent coat of wool, capable of withstanding the severest winter provided the snow is not too deep; Welsh Sheep, Hebridean Sheep, Shetland Sheep, Icelandic Sheep. All these varieties are extremely hardy, and would, I am sure, do well in the comparatively sheltered bays of the south and west coast." (*Newfoundland and its Untrodden Ways*.)

In the *Newfoundland Guide Book* for 1905 edited by Judge Prowse, the following passage occurs; it may well prove to be a true prophesy: "Newfoundland is especially adapted for a great sheep country, and the Newfoundland mutton is as good as the best Scotch or Swedish when fattened on our wild pastures. There are grassy downs inside of Branch, St. Mary's Bay, splendid upland pastures between St. Mary's and Trepassey, and in numbers of other places around the island, on which with the aid of a few fields of Swedish turnips, a little shelter, and a store of wild hay, thousands of sheep could be kept all the year round. What is required is a good hardy breed of sheep, and a trained shepherd or two with their collies. Instead of 80,000 sheep Newfoundland should have millions. It has been well said that the future prosperity of Newfoundland lies in sheep and herrings. There is a great future for sheep farming in this country; splendid pasture on these Downs, both

on our south and west coast; plenty of water, wood, and shelter in all the little valleys. No noxious beasts and no vicious dogs are allowed in all these parts of the Island I have mentioned. In a few years our Newfoundland mutton should be as famous as the Scotch or Welsh."

When the successful sheep farming in Patagonia (which is a much colder and more sterile country) is borne in mind, it would certainly seem worth while to give it a trial in Newfoundland in a really thorough way.

The Government of Newfoundland is naturally anxious to see sheep farming established on a large scale, and the Sheep Act, amongst other advantages, provides for the remission of all duties upon imported agricultural implements, and for the exemption of sheep dogs from the local laws. And the Government might be depended upon to co-operate cordially in other ways if sheep farming were really seriously undertaken.

It may be asked why this has not yet been done. The answer is simple: Want of means of communication, and of a cheap and rapid means of transportation to the American and European markets.

CATTLE.

Much of what has been written above about sheep applies equally to cattle. There are undoubtedly vast stretches of land in the interior where cattle would thrive if they had a sufficiency of grass. The climate is not so rigorous as in Western Canada and in the North-Western States of America; it is essentially a question of what food they could obtain. There are few countries where either cattle or sheep can be turned straight out upon untouched ground and do well. Take Rhodesia for example, which is now bidding fair to become a prosperous cattle country; for years the settlers have had to contend with redwater, rinderpest, lung sickness, and the other diseases peculiar to South African cattle: and in many places also with sour, rank, uneatable grass, and with the poisonous little tulip, the snake head, which is so deadly both to cattle and to sheep. On the other hand, in the Western States of America, where the natural pasturage was good, the market was a long way off.

In Newfoundland there would be none of these disadvantages; the market both in America and in Europe would be a near and a constant one, and when the Green Bay—Gaspé route is established, easy of access.

The sheep would not die by thousands of drought as they sometimes do in Australia, or the cattle of rinderpest as they do in Africa. There would be no wild dogs, wolves, lions, or other wild animals, to contend with as in Australia and Africa; "there would they see no enemy but winter and rough weather." And even the winter is not so bad as it has been painted, for the climate of Newfoundland is not by any means so severe as is generally supposed; "the range of the thermometer is very much less than in any other part of the Canadas, the heat in summer seldom exceeding from 70° to 75° fahr., while the cold in winter is seldom very much below zero." (ALEX. MURRAY, *Geological Survey*, page 109).

On the West Coast, moreover, it is a dry, steady cold; not nearly so trying to stock as a damp, variable cold. Cattle have not yet been tried on a large scale in the island, though many people have asserted that it is a good grazing country.

Sir John Harvey, when Governor, wrote in a despatch to the Colonial Office: "Newfoundland, in fact, appears to me to be essentially a grazing country."

"There can be no doubt that this Savanna soil could be reclaimed by drainage and tilling, so as to yield green crops; a process which has been carried out in Scotland and other countries. A vast grazing country, it may safely be predicted, will some day be found where now these deer solitudes extend." (HATTON & HARVEY, *Newfoundland*, page 145).

Judge Prowse says the same thing:

"Many of the large marshes can easily be drained, and will be available for meadow and pasture, and these cover many thousands of acres. There is also a vast amount of

wild pasture for cattle on the barren tracts of land which are situated in different parts of the country, and I believe the Island offers every inducement for cattle raising, as in the summer months they could be grazed on the hills, and in the winter could be fed from the hay cut on the flat interval lands along the river brooks and islands." (*Guide Book*, page 144).

Mr. Millais thinks ponies would thrive on this wild hay: "I noticed considerable quantities of a coarse native wild hay, of such a quality too, that ponies would thrive upon it during the summer months. . . . I have seen a few horses on the Gander in very good condition through living on this native hay, and there is no reason why pony-raising should not be a profitable industry amongst the people of the south and west coast, if they would only import and breed the right kind of pony." (*Newfoundland and its Untrodden Ways*.)

The cattle would not require to be kept under cover; they could stand the cold all right; but large open sheds might have to be built, where they could come to get hay and other food to help them through when the snow was very deep.

But it cannot be too often repeated that to start either cattle ranching or sheep farming in a country so unopened, and where the means of transportation are so limited, without ample capital, is to court failure. Money must be spent in draining the marshes, and in getting rid of the rank grass which grows upon them; in finding out which breed of cattle will thrive best; and in the many other ways in which a preliminary expenditure has necessarily to be incurred before any enterprise of the kind can be made to pay.

In Newfoundland the drainage of the marshes would be easy and inexpensive, for the ground is seldom level.

"A large space is occupied by marshes or swamps. The best judges declare that, in a majority of cases, these could be drained, and profitably converted into meadow, if not arable land, as has been done in similar cases in Great Britain and Ireland." (HATTON & HARVEY, *Newfoundland*.)

If a grant of land were given for the railway it would be well worth while to incur this expenditure. It might be obtained either by raising a small extra amount of capital specifically for that purpose, or by arranging to give favourable terms to persons interested in the cattle industry elsewhere.

With refrigerator cars on the railway, and with refrigerator steamers across the Atlantic, the trade in chilled meat might attain to very large proportions; and it is possible that cattle ranching in Newfoundland might rapidly prove to be a very profitable business, for in addition to the chilled meat there would be the possibility of a lucrative trade in live stock. In 1880 a joint committee of the Council and House of Assembly of Newfoundland, appointed to consider the question of constructing a railway in the Island, presented a report, from which this is an extract:

"The enquiry is further suggested whether this Colony should not become an exporter of live stock; and we have little difficulty in affirming this position. For grazing purposes we have large tracts that we believe cannot be surpassed in British North America; and when we regard our proximity to England, and the all-important consideration of a short voyage for live stock, the advantages we possess in this connection are too manifest to be the subject of question or argument."

It is the lack of means of transportation which has stood in the way of any such development so far, and the proposed Green Bay—Gaspé route will do much to bring it about by providing a ready market both in Europe and in America.

FISHERIES.

The Newfoundland Fisheries, so far, have been confined almost entirely to cod, halibut, herring and lobster; all of which are salted or canned, there being no means for exporting them fresh. But the catch might be almost indefinitely extended if proper facilities could be provided for the transportation of fresh fish.

It was thought advisable to ask the United States Fishery Bureau for their opinion as to this, their information, owing to the American Treaty rights in Newfoundland and Labrador, being known to be both extensive and accurate; and the following instructive and courteous letter was received in reply:—

DEPARTMENT OF COMMERCE AND LABOR.

Bureau of Fisheries.

Mr. H. C. THOMSON.

WASHINGTON, 25th July, 1911.

DEAR SIR,

The Bureau acknowledges the receipt of your letter of the 24th instant in which you make inquiry regarding certain fishing matters pertaining to the coasts of Newfoundland and Labrador. The following information is submitted in reply:—

1. The fishing grounds on the coasts of Newfoundland and Labrador, and those of Greenland and Iceland, constitute the most productive waters for certain kinds of fish on the western side of the Atlantic Ocean, and the supply is more or less constant. Each important species is of course not obtainable throughout the year, but there is no month in which some kind of commercial fish may not be obtained in large quantities.
2. In addition to cod, which is the staple fish of this region, and halibut, which is caught chiefly by American fishermen, there is an enormous supply of herring and a fairly good supply of salmon, trout, and lobsters, together with caplin and squid which are in big demand for bait. There are also various kinds of flatfish, which are not now utilised to any great extent, together with cusk, hake, and other deep-sea fishes. The tuna, or horse mackerel, is also present in considerable numbers and ought to meet with ready sale in the large markets, although the Newfoundland fishermen at the present time do not make any use of this species.

I would call particular attention to the abundance of halibut on the west coast of Newfoundland, where the Americans have been carrying on a profitable fishery for many years in inshore waters. The enormous bodies of herring, which resort to the bays on the west coast in winter, support a large fishery that is conducted primarily by Canadian and American vessels. These fish are taken in a frozen and salted condition to the home port and meet a ready demand.

Yours respectfully,

(Signed) H. M. SMITH,
Acting Commissioner.

Mr. Thomson afterwards discussed with various leading men in the Boston and Gloucester Fish business the possibilities of a train ferry across the Gulf of St. Lawrence, and its probable effect upon the development of the Newfoundland Fisheries. They all said that fresh fish could not be dealt with efficiently, from so great a distance, except by train ferries carrying refrigerator cars, so that the fish need not be handled in transit; they further said that if such a ferry could be established they would be willing to co-operate; that it would pay them then to keep a fleet of fishing boats permanently on the North-East coast; using Green Bay as a terminal port from which fresh fish could be sent through to

the populous cities of the middle West, where it can, now, only be obtained in small quantities, and at high prices. They could do this the more easily because the U.S. have valuable treaty rights in Labrador, as well as in Newfoundland, which they could utilize advantageously with fast trawlers, using Green Bay as their operating base.

The Traffic Managers of various railway companies in Canada and the U.S. were also consulted as to the feasibility of carrying fish in the refrigerator cars one way and fruit the other, and the assurance was given that there is no objection to it whatever; that, in fact, many of the railways carry fish and fruit together in the same car. The general view expressed in the U.S. and Canada, as well as in Newfoundland, was that the only way by which satisfactory results could be obtained, would be to pack the fish into refrigerator cars directly after being caught; that to send it across in refrigerator steamers, to be again transferred into refrigerator cars at Gaspé, would not succeed at all where the fish has to be sent afterwards to such great distances; that it could only be kept fresh if it were never handled after being taken from the boats and packed in the refrigerator cars.

Negotiations were begun with the Booth Fisheries Company, for the handling of the fish; and with certain Railway Companies with reference to the development of the fresh fish trade and the best means of transporting the fish.

The correspondence with the Booth Fisheries Company shows how that Company subsequently entered into separate negotiations on their own behalf with the Government of Newfoundland. A statement was published in the *Chicago Tribune* that definite agreements had been entered into with that Government for the exploitation of the fisheries on a large scale: these agreements including subsidies for steamers for the transportation of the fish, together with such extensive concessions with regard to the catching and supplying of bait fishes as would have given the Booth Company a virtual monopoly, or to use the words of the *Chicago Tribune* "what is tantamount to a complete control of the industry," and would have placed the Newfoundland fishermen absolutely in that Company's power; a state of affairs which would have been exceedingly detrimental to Imperial interests, for the Newfoundland fishermen constitute a valuable potential source of supply both for the Canadian and for the British Navy.

Correspondence with the Newfoundland Government showed, however, that no such agreements have been entered into, and no such monopoly obtained. This is a matter for satisfaction, but having regard to the immense future value of these fisheries, and to the already greatly increased importance of the trade in fresh fish from Newfoundland to the United States (now that the duty on fish has been taken off by the new American Tariff), it seems highly desirable that British fishing firms should investigate the whole question carefully, to ascertain whether it would not be just as well worth their while as that of the Americans to enter into active participation in the Newfoundland fisheries. They could do so on even more advantageous terms if they were to take advantage of the train ferry system, for they would have a market in all the principal cities in Canada as well as in the United States. Moreover it would enable fish which are plentiful around British shores, but scarce in Newfoundland, such as soles and mackerel, to find a ready sale in both those markets.

The refrigerator steamers which would bring this fish over could take back fruit, and fish also, such as halibut, which are plentiful round Newfoundland, but have to be brought to the British Isles from great distances, from Iceland and elsewhere.

Certain fish are so plentiful round Newfoundland, and obtainable there at so exceedingly low a price, that they could be profitably shipped to this country if suitable means of transport were available; for instance, cod only costs $1\frac{1}{2}$ cents per lb. for large fish, and 1 cent for small, the supply being practically unlimited; halibut 2 cents; salmon 5 cents; lobsters $\frac{1}{2}$ cent, there being a very large supply; flounders and other flat fish, for which there would be a great demand, only $\frac{1}{2}$ cent, and of these also there is practically an unlimited supply.

Clause 7 of Mr. Thomson's letter of agreement with the Newfoundland Government expressly provides that: "all through freight carried by the Company coming from countries

outside Newfoundland, and not intended for consumption in Newfoundland, shall be passed through Newfoundland in bond, and shall not be charged any customs duties in Newfoundland." This would enable British caught fish to be passed through to America and Canada free of duty in Newfoundland, and Canadian caught fish to come through in the same way free of duty to this country.

Attention is directed to the Fisheries Report of the Newfoundland Government for 1912, to pages 21, 22, 24, 26 and 28, and to appendix xxxvi, liii and lxxiii; also to the Resolution of the Quebec Board of Trade, set out elsewhere, which declares that the proposed train ferry system will benefit the Fisheries both of Canada and of Newfoundland; and to an article dealing with the proposed Booth enterprise which appeared in the *London Financial News*, on 15th August, 1912.

The head of one of the largest fishing firms in Canada, it may be mentioned, stated recently that the establishment of the proposed Green Bay route, with train ferries carrying refrigerator cars, would, he thought, go far to revolutionize the whole fishing industry in the Gulf of St. Lawrence.

By Clauses 8 and 9 of the said letter of agreement the Newfoundland Government undertakes to give free grants of land for the erection of cold storage plant, smoke houses and fertilizer factories, and to allow the machinery for their original installation and certain specified articles, ammonia for refrigerator purposes, vegetable oils for use in curing fish, gasoline and kerosene oil engines, and gasoline and kerosene oil when used for driving engines, to come in duty free for a period of twenty years; and it is believed that if any serious intention were shown to take the fishery question energetically in hand there would be no difficulty in obtaining further and more substantial assistance.

Among those who have agreed to co-operate in the formation of a Company to take over the concessions which the Government of Newfoundland have undertaken to give, is a member of one of the principal Canadian Firms interested in the St. Lawrence fisheries, and two members of the leading mercantile and fishing firms in Newfoundland; they propose that a very thorough investigation shall be made as to the nature and quantity of the fish likely to be obtained, the increased use of motor boats, the best means of handling the fish, and other kindred questions before any considerable outlay shall be incurred.

There would be no opposition to the project in Newfoundland by those dealing in salt and dried fish, as they contend that the development of the trade in fresh fish would give stability to the dried, salt fish market, and would prevent the violent fluctuations which are so detrimental to that trade and to the prosperity, generally, of Newfoundland.

F R U I T .

It is believed that conjointly with the fresh fish trade there might result a considerable development of the trade in tropical and other fruits; immense quantities of these fruits being handled in the United States by means of refrigerator cars. By utilizing the Gaspé—Green Bay route, a great deal of fruit could be shipped across the Atlantic which at present is too delicate to be sent over in any large quantity. The passage from Green Bay would be cooler as well as shorter than by the more Southerly routes, and the fruit would not deteriorate so much from the heat. It is believed that just as the fruit trade, and the trade in chilled and frozen meat have attained to immense dimensions in America, owing primarily to the use of refrigerator cars, so the use of these cars may lead to a similarly great development of the trade in fresh fish, for which there is a growing demand in the United States; the earnest desire of the United States Government being to reduce the cost of living by providing a plentiful supply of fish, which is a cheaper, and in many ways a better, food than meat; and there is quite a propaganda going on in the United States at present to promote its use.

President Taft stated this, indeed, as one of his chief reasons for the reciprocity treaty with Canada, and the present Administration, with the same end in view, have taken the duty off fish altogether.

The supply of fish, as has already been pointed out, is practically unlimited. It only requires means for catching it, and getting it to market in good condition. If that can be done, the fisheries of Newfoundland will again abundantly justify Lord Bacon's saying that they are the richest gold mine in the world: "The gold mine of the Newfoundland fishery, richer than the famous treasures of Golconda and Peru." And they are a gold mine, too, whose deep levels have as yet been untouched.

PULP AND PAPER.

The Anglo-Newfoundland Development Company, in which Lord Northcliffe is largely interested, is working a great pulp and paper making industry at Grand Falls, and the Albert Reid Company one at Bishops Falls, which is of nearly equal importance. Various other mills are springing up all over the country; some good and some bad, for since the initiation of the Harmsworth enterprise there has been a great deal of reckless and foolish speculation in timber and pulp lands.

The total amount of pulp and paper exported from the Island must soon be very large. The Grand Falls and Bishops Falls Companies ship theirs from the terminus of the railway, belonging to them jointly, at Botwoodville in Notre Dame Bay, a little to the south of Green Bay. It is possible that an arrangement might be come to for the steamers to call first at Green Bay, and afterwards at Botwoodville. It would be a convenience to these concerns to have a regular line of boats to ship by, and the quantity of paper and pulp to be carried would be considerable, amounting in all, it is stated, to between two and three thousand tons per week. This would all go to British ports; but there are other mills which would ship entirely to the United States, and for them the train ferry, by the Bay of Islands and Gaspé route, would be the cheapest and most convenient mode of shipment.

Attention is directed to the speech made by Sir Edward Morris, when introducing the Bill for the establishment of the proposed pulp and paper industry at Deer Lake, which will be situated right upon the line of the railway from Green Bay to the Bay of Islands.

With regard to that mill, and to the other mills which may be erected on the west coast, the following is a letter, dated 1st September, 1911, to Mr. Thomson from Mr. Sweet, an American largely interested in Newfoundland pulp, dealing with the probable shipments to America:—

"In compliance with your request for a statement of my opinion of the extent of the timber areas which are accessible to your proposed line of railway from Green Bay to Humber Arm, on the west side of the Island of Newfoundland, I will say that I think there are approximately two thousand square miles of such timber areas which would be accessible to this road with the addition of a few short branch lines or feeders."

"The building of this line would no doubt be a strong incentive to the building and operation of several large pulp and paper making plants, more particularly the former as this line with its train ferry connection would afford by far the cheapest and most direct route of transport to Michigan and Wisconsin markets, as well as other central western points in the United States."

"With full operations along your line there would be produced a large volume of business, probably from two thousand to two thousand five hundred tons of freight weekly from the timber resources alone."

It may be added that some time ago, when this question was under consideration, one of the principal paper manufacturers in the U.S., said that if a train ferry service could be established, so that the paper could be sent right through to its destination in the U.S., it would pay to set up paper mills in Newfoundland rather than merely pulp mills; the conditions in the island being so exceedingly favourable, both for making paper and for making pulp, more so perhaps than in any other country. It is only the necessity of trans-shipment, and of frequent handling of the paper which at present stands in the way; and if that could be obviated by a system of train ferries, his corporation, he said, would certainly attempt to secure timber areas in Newfoundland, and to establish a branch pulp and paper mill there.

An incidental advantage, so far as the railway is concerned, would be that the cars bringing grain across to Newfoundland would not have to return empty; they could take back paper and paper pulp.

MINERALS.

It must be remembered that Newfoundland is in the main an unprospected country, and that its mineral wealth is still almost an unknown quantity, there being only two paying mines, one of copper at Tilt Cove, in Notre Dame Bay, the other an iron mine, at Bell Island or Wobana, in Conception Bay. Both of these are exceedingly valuable properties. "Tilt Cove" to quote again from Judge Prowse, "realised a net profit of £70,000 sterling in 1903, and the profits for 1904, are expected to reach £100,000 sterling. £7,000 worth of gold was extracted one year from Tilt Cove copper ore." *Guide Book*, page 137.

The copper bearing deposits are widely distributed all over the Island, and when it is better prospected it is reasonable to assume that other rich copper mines will be found.

The Bell Island Mine is one of the most valuable iron mines in the world. Judge Prowse says of it:—

"At a moderate estimate there are 40,000,000 tons in sight, which lie in two almost horizontal beds so that the mine is worked as an open quarry, and the ore can be placed on board for 30 or 40 cents per ton. The two beds are 6½ feet and 5½ feet thick."

In Mr. Holloway's book, *Through Newfoundland with a Camera*, there is an excellent summary of the mineral industry and its prospects:—

"Chrome iron ore, iron pyrites, zinc and lead ores often carrying silver in payable quantities, manganese ore, asbestos, pyrophyllite, and gypsum are also worked. Enormous deposits of beautiful marble occur at the mouth and along the banks of the Humber River. Gypsum occurs in immense quantities at Codroy, and Bay St. George, and plentiful supplies of granite and other igneous rocks exist in many localities, and have supplied the material for the fine railway bridges which span our rivers. Gold and petroleum also occur, and have caused no little excitement, though so far neither has proved a source of revenue to the country. Fine roofing slate occurs in a large number of localities and has given rise to an important and growing industry."

Professor Howley, the Director of the Geological Survey of Newfoundland, writes as follows with regard to the geology of the Island, and the possibilities of mineral development:—

"The Lauzon division of the Quebec group, consisting of serpentine rocks associated with dolomites, diorites, &c., is well known throughout North America to be usually more

or less metalliferous, and in this respect the Newfoundland rocks are no exception, but on the contrary, give evidence of being rich in metallic ores. Hence it is only reasonable to infer the probability that many parts of the Island are destined to become important mining centres."

Unfortunately there has been much reckless speculation in mining properties which have ultimately proved to be altogether worthless, and this has damaged the prospects of the mining industry considerably. But the unprospected area is so vast, and its possibilities so great, that it ought to be carefully examined, before an adverse opinion is formed.

It may be stated that at the time when the original agreement with the Newfoundland Government was entered into, Sir William MacGregor, who was then the Governor, very strongly urged that a really first-class Geologist should be sent out to report upon the mineral prospects of the land which was to be granted to the Company, and that a practical prospector should be sent with him.

C O A L .

Coal has been found in several places in Newfoundland, but none of it is being worked; the whole of the soft coal used being imported from Cape Breton, and the hard coal from the U.S. It is to be hoped that in time a payable seam may be found; it would be of immense value in the development of the mineral and other resources of the Island.

Professor Holloway has this to say on the subject: "As regards coal, opinions are still divided; extensive deposits occur round Bay St. George, but although the importance of coal to Newfoundland generally, and to its mineral industries especially, is fully recognised, but little development work has been done, and a thorough investigation by technical men is much to be desired."

The train ferry system, it may be noted, would enable American coal to compete successfully with the Sydney coal which at present has a practical monopoly in the Island.

P E A T .

Peat is found in many places; the peat bogs being extensive, and the peat of good quality. It is not at present used at all, the fishermen preferring to use wood, of which there is still a sufficient supply, but should a large industrial population ever come into existence some use will assuredly be made of the Peat.

P E T R O L E U M .

Two oil companies have been floated to operate the petroliferous areas situate on the west coast, north of Bonne Bay. They have both been unsuccessful. One company has been wound up, and the shares of the other are at a very low figure. (*See various papers and reports connected with these companies and with the oil areas.*)

It is probable that some day oil in paying quantities will yet be found—there are many people who are still firm believers in the oil being there—but for the time being the oil industry in Newfoundland appears to have received a blow from which it may take years to recover.

Oil shale has also been found in large quantities on the west shore of Deer Lake—between there and Bonne Bay—which is right on the line of the Green Bay to Bay of Islands Railway. It is now being carefully examined by oil shale experts, and a company is in process of formation to work it. Should it be successful, the oil would be of great value, for both the railway and the steamers could in that case be operated very economically with oil fuel.

THE TUNNEL UNDER THE STRAITS OF BELLE ISLE.

When the vast territory of Labrador is opened up, as it will be very rapidly when the Hudson Bay Railway is completed, it cannot be long before the project to construct a tunnel under the Straits of Belle Isle is realized. Already railways are being considered to go through Labrador; several to traverse it throughout its whole length, along the height of land, from Winnipeg and Montreal to Hamilton Inlet; and one, the continuation of the Quebec and Saguenay Railway, to run along the north shore of the Gulf of St. Lawrence to a terminal port at Cape Charles. This last named railway received legislative sanction from the Newfoundland Legislature during its last session in the present year 1913, authority being conferred to build a line up the west coast to connect with the Quebec-Labrador line across the Straits of Belle Isle.

A tunnel under the Straits is the natural complement to all these lines; for without a tunnel they will be held idle for nearly half the year, their harbours being blocked with ice, whilst with a tunnel they will obtain an outlet to the ice-free harbour of St. John's, open to shipping all the year through, and to the new port at Green Bay. The same object could be attained to some extent by ice breaking train ferries, but not so effectively as by a tunnel, the jamb of ice in the Straits being at times so great that it is believed no train ferry could get through it.

Clause 6 of the original contract of March 1907 with the Newfoundland Government gave, *inter alia*, authority to construct an extension of the said Green Bay Railway to St. John's or such other port as might be mutually agreed upon, and clause 33 gave in addition authority to build a railway up the west coast to the Straits of Belle Isle, and thence through the Newfoundland territory of Labrador to the boundary of the Province of Quebec, and to amalgamate, unite or otherwise operate such railway in conjunction or co-operation with any railway or railways operating in Labrador, either under the authority of the Government of Quebec, or of the Government of the Dominion of Canada or otherwise, and to connect the several parts of such railway across the Straits of Belle Isle, either by ice-breaking steamers, or by means of a tunnel, whichever might in the opinion of the contractors be the most feasible. This latter clause contemplated, in fact, the very connection with the coming Labrador railways for which authority has now been granted to the Quebec-Labrador line; although, apparently a tunnel is not now contemplated, only a train ferry connection.

But it is merely a matter of time before the tunnel will have to be undertaken. Sir Robert Bond in his speech on the proposed Short Route on the 28th February, 1907, stated very fully the advantages which would accrue to Newfoundland from its construction:

“We would then have a through railway route to the sea from the great wheat fields and cattle ranches of the North-West that must prove of great value to the Dominion of Canada and to Great Britain

This tunnel route would undoubtedly secure the wheat and cattle traffic of Canada so far as exportation to Great Britain is concerned, and Green Bay and St. John's would thus become two of the greatest shipping ports on this side of the Atlantic, and the amount of labour and profit that would accrue to our people would be enormous. We cannot possibly realize all that the successful carrying out of this project would mean to this Colony, but we can see in this project a great revolutionary force that will change the whole aspect of things in this Colony for the better." (*See Sir Robert Bond's speech*).

The Hon. John Harvey, who was in a position to speak with authority as his firm had operated the coastal mail contract for many years, when moving the second reading of the Bill for the adoption of the contract by the Legislative Council, said :—

"There could be no doubt that it would be the future grain route of the Empire from the North-West of Canada, as the Labrador route was beset with many dangers, whilst the St. Lawrence was a short season and likewise a dangerous route. We could give a twelve-months-to-the-year service, and could deliver grain all the year round. Then there was the further reason of its strategic value as an easily defended food route. This Bill did not contemplate the immediate piercing of the tunnel through Belle Isle Straits. It was but the first step to an end which he believed was very speedily coming, more speedily than most people thought possible. The cost of the tunnel was by no means prohibitive, as things went nowadays. He understood the estimate was about two-and-a-half millions sterling which was a most insignificant item in comparison with the enormous interests that would be served."

Mr. T. P. McGrath (now the Hon. T. P. McGrath) in an article which appeared in the *Technical World Magazine* for November, 1907, called "To cut the Ocean in Half," made some interesting statements about the proposed tunnel, and the results likely to accrue from it.

"A line to the Atlantic seaboard in Eastern Labrador in the neighbourhood of the Strait of Belle Isle is likewise proposed. There would be little point in building a railroad through the Saguenay country, as it is termed, for the sake of the brief summer period when it would be possible to run steamers to Labrador, because there are numerous harbours along the Gulf that would serve the same purpose at far less expense. If, however, Belle Isle Strait were tunneled, and the railroad system extended through Newfoundland to St. John's it would be possible to utilize it the whole year round, and this is what is contemplated."

Mr. McGrath then describes the advantages resulting to Newfoundland in particular from the construction of the tunnel.

"For Newfoundland feels keenly her economic isolation. She yearns to expand, to reach out, to take a part in the humming activity that suddenly seems to have possessed the mainland. Give Newfoundland railroad communication with Labrador and Quebec Province. Let her sea-port, St. John's, be one of the outlets of a Continent, and who will dare prophecy the limits of her future? Here then, we have the motives for this building up of a great sea-port, which in its turn depends upon the construction of a tunnel under the Belle Isle Strait; it will greatly enhance the economic and political importance of Newfoundland; furnish an outlet to that big section of the Continent called Canada, just back of her; free Canada from her partial dependence upon the United States for transportation privileges, and render her self-sufficing." (*See Mr. McGrath's article*).

The question of the Channel Tunnel is again attracting attention, and Sir Francis Fox, the eminent engineer, writing to the *Daily Graphic* on June 2nd, 1913, shows that submarine tunnelling is no longer so difficult and costly as it used to be :—

"In America a large tunnel is being driven under the Hudson River which would have been impossible six years ago, the rock being fissured in all directions, the hydrostatic pressure of 200 feet rendering the employment of compressed air, with safety to the men, impossible."

"By the introduction of the grouting process, a method well known in connection with the tube railways, it has been found possible to fill up the fissures and beds in the strata, to the exclusion of springs or inrushes of water. Hitherto in England cement grout has been injected behind the tunnel plates with pressures varying from 60-lbs. to 80-lbs. to the inch, and for the conservation of old buildings the masonry has been fortified with cement by pressure of 30-lbs.; but in Yorkshire, in the sinking of coal-pit shafts, a pressure is employed of 400-lbs., and in America 500-lbs. to the square inch, with the result that all the fissures, great or small, are rendered impervious."

Three Miles a Year.

"By these means the one remaining engineering objection to the construction of a tunnel under the sea has been surmounted, for it obviates in a most efficient manner the possibility of any influx of water."

"The tunnels would be worked and lighted by electricity during construction, as well as in the handling of traffic; and as there would be two parallel tunnels the problem of ventilation is simplified."

"It is estimated that an average speed, in driving the pilot or preliminary heading, could be obtained of seventeen yards per day, for six days in the week, equivalent to an advance of three miles, from both the English and French sides, at each 'face' per year; so that about four years would suffice to drive a gallery from England to France. While this pilot gallery is being driven, the enlarged sections of the main tunnels would be carried on, by which considerable saving of time would be effected."

M. Bunau Varilla, the great French engineer, stated recently in the *Daily Graphic* that the cost of a continuous Channel tunnel from land to land need not exceed six million pounds.

The cost of the Georgian Bay Canal 440 miles in length is estimated at \$100,000,000, whilst that of the Belle Isle Tunnel would only be about \$12,000,000 (two-and-a-half million pounds); yet the resultant advantages both to Canada and to Great Britain would be infinitely greater, both commercially and strategically.

It is, of course, difficult to give any precise estimate of the cost of connecting the existing railway system in Canada with the Newfoundland railways, but it is certain that the entire enterprise could be carried through for a comparatively small amount (say):—

800 miles of railway from the Straits to Lake Chibogamou at £6,000 a mile	...	...	...	...	...	...	£4,800,000
Cost of tunnel	...	...	...	...	...	...	2,500,000
Continuation of line through Newfoundland to meet the Green Bay line at Deer Lake, about 150 miles, at £5,000 a mile	...	...	...	...	...	...	700,000
							£8,000,000

Or, to be on the safe side, let us say that for £10,000,000 the whole thing could be done quite easily with an ample margin for all contingencies.

Grand Falls of the Hamilton River.

There would be no difficulty about electric power for the railway, for an inexhaustible supply exists in the Grand Falls of the Hamilton River.

"In 12 miles the total fall is 760 feet. Such a fall would be nothing extraordinary for a small stream in a mountainous country, but phenomenal in a great river like the Hamilton, which has been estimated to discharge at this point about 50,000 cubic feet per second. The descent includes a fall of 302 feet, the rest being in the form of heavy rapids." *Report on Labrador by A. P. Low, Geological Survey of Canada.*

CONCLUSION.

The advantages of the Newfoundland Trans-Atlantic Route are summarized briefly in the recitals to the agreement of 1907, which run thus:—

“Whereas it is desirable to establish a safer and speedier means of communication between Great Britain, Ireland and the Continent of North America, by way of and through the Island of Newfoundland, and thereby to facilitate and promote the development of the resources of the said island;

“And whereas the said means of communication would be of Imperial importance, and of great strategic value in time of war, by affording a route quicker and less exposed to attack than any now existing route;

“And whereas such means of communication would also establish a quicker route between Great Britain and the Pacific Coast of the Continent of America, the Colonies of Australia and New Zealand, Japan and the countries of the Far East.”

This last recital at first sight seems somewhat visionary, but it is taken from a passage, almost identically similar, in the memorandum issued by the Government of Newfoundland in 1878, in connection with Sir Sandford Fleming's proposed short Atlantic route. It is in these words:—

“It has been urged on behalf of the Newfoundland Railway that whilst it would form an essential part of a British chain of communication (*another name for the All-Red Route*) to the northern half of America, to British Columbia, to New Zealand, to the Australian Colonies and to India, it would, during a portion of the year, undoubtedly establish the shortest possible ocean route between Europe and America, and in consequence might be assumed to command a very large share of the mail, express and passenger traffic between the two continents.”

The foregoing pages are an endeavour to show that this claim is not an extravagant one.

Sir Sandford Fleming, in his masterly report on the subject to the Canadian Parliament, makes it clear that Newfoundland is really the key to the whole of the North American Continent. It was written in 1873, and illustrates, incidentally, the immense changes which since then have taken place in the speed of Trans-Atlantic steamers:—

“By this table it will be seen that the mails from London could not only be carried to all parts of the British Provinces and to all parts of the Northern States, in a marvellously short space of time by the route herein projected, but that it is quite possible to deliver them on the shores of the Gulf of Mexico in *nine days*, less time, in fact, than the shortest passages of the Cunard or of any other steamers between Liverpool and New York. . . . If, as it has been shown, this route would reduce the time between London and New York some three or four days, and bring Toronto one-third nearer Liverpool (in time) than New York is now; if it would give the merchant in Chicago his English letters four or five days earlier than he has ever yet received them, if it be possible by this proposed route to lift the mails in London and lay them down in New Orleans in less time than they have ever yet reached New York, then it surely possesses advantages which must eventually establish it, *not simply as an Inter-Colonial, but rather as an Inter-Continental line of Communication.*”

But the route, as now projected, will do more than that; it will inevitably lead to the construction of the tunnel under the Straits of Belle Isle, and so will conduce to the speedy development of the vast resources of Labrador; and, by the establishment of a system of train-ferries between the Bay of Islands and the Canadian mainland, it will cause Green Bay to become the concentrating point for a great portion of the goods as well as of the passenger and mail traffic of North America; it may become one of the important harbours of the world, the Liverpool of North America.

But to do this the car ferries will have to be built, and the railway between Green Bay and the Bay of Islands constructed, and that can only be done if the Government of Newfoundland is still prepared to assist. A further recital in the agreement of 1907 states quite frankly that—"It is believed that substantial assistance and support would be afforded for such means of communication by the Governments of the various countries which would be benefited thereby;" but naturally the first move must come from Newfoundland, as the country which of all others will reap the greatest profit.

In 1878 the Newfoundland Government were willing to give liberal grants of land for the construction of the railway, in addition to a yearly subsidy of \$120,000 for its operation, in the hope of bringing about the then much desired short route.

But now that the adoption of the train-ferry system will do away with the necessity of transhipment, the benefits which will accrue to Newfoundland from a Trans-Atlantic route, passing through the Island, will be considerably greater; and there is every reason to believe that the Government will be just as ready to assist as they were in 1878, in 1881, and again in 1907.

It should be pointed out that the long period which has elapsed since the agreement of 1907 was entered into, without the railway having been begun, is not a valid argument against the feasibility of the route, nor ought it to create a feeling of scepticism as to the possibility of its ultimate establishment.

Changes of trade routes always take a long time to effect—there are so many difficulties to overcome; so many vested interests to contend with; so much scepticism, and hesitation about taking a step which, in its initial stages, must necessarily be attended with a good deal of uncertainty and risk. Take for instance the short route to India by way of Suez and the Red Sea, before the Suez Canal was built; what years were spent by Lieut. Waghorn before he could get people to believe in it. Take the Tehuantepec railway in Mexico; what years there were of unsuccessful effort, before it, too, became an accomplished fact. Take again the endeavours to establish a port on the west coast of Ireland, and to bring about, in connection with it, the much discussed All-Red Route between Great Britain and Canada. These endeavours have been going on for years, for a longer time than the attempt to establish the Green Bay route, and yet, so far, neither of these enterprises have come to anything, although very powerful influences have been at work in their behalf.

And in the case of the Green Bay route a great deal of the unavoidable preliminary work has been done which is inseparable from all enterprises of that nature, so that when it is finally decided to carry the matter through, the route will come into existence without difficulty or delay just as the Suez and Tehuantepec routes did. The much debated question of the freedom of Green Bay from fog, has been determined; the whole of Notre Dame Bay (including Green Bay) has been re-surveyed; the line most suitable for the railway has been located; and—the most vital point of all—the feasibility of a through car-connection between Green Bay and the railway systems of Canada and the United States has been placed beyond cavil.

These are all contributory factors towards ultimate success; but the greatest factor of all is the advantage of geographical position; if that be unquestionable, as in the case of Green Bay it undoubtedly is, then it is only a matter of time before it will prevail over all other considerations, and will compel, however unwillingly, the commercial adoption of the route.



